

Journal
of the Asiatic Society
1846

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JOURNAL

OF THE

ASIATIC SOCIETY.



CATALOGUE OF MAMMALIA

Inhabiting the MALAYAN PENINSULA AND ISLANDS

*Collected or observed by THEODOR CANFOR, M. D., Bengal
Medical Service*

☞ Localities printed in Italics signify those from whence the animals of the Catalogue were obtained, in ordinary type those previously given by authors

QUADRUMANA

SIMIADÆ

GEN — *PITHECUS, Geoffroy*

PITHECUS SATYRUS, Geoffroy

SYN — *Simia Satyrus, Linné*

Simia Agrias, Schreber.

Singe de Wurmb, Audebert.

Papio Wurmbi, Latreille

Pithecus Satyrus, Desmarest

Simia Wurmbi, Kuhl

Orang Pandak, Raffles

Simia Satyrus,
Simia Abeli,
Simia Wurmbi, } *apud Fisher.*

No. 171 No. 87, NEW SERIES.

Simia Satyrus, apud Ogilby.

Satyrus rufus, Lesson.

Pithecus Satyrus, apud Martin.

Simia Satyrus, apud Schinz.

"O'rang U'tan" of the Malays.

HAB.—*Borneo, Sumatra.*

The physiognomy and the colour of the face exhibit a marked difference in living individuals from the two localities.*

GEN.—*HYLOBATES, Illiger.*

HYLOBATES LAR, Ogilby.

SYN.—Grand Gibbon, Buffon.

Homo Lar, Linné, Mantiss.

Simia longimana, Schreber.

Simia longimana, Grand, et Petit Gibbon, Erxleb

Simia Lar, Linné Syst

Le Gibbon, Audubert.

Pithecus Lar, Desmarest.

Simia albimana, Vigors and Horsfield.

Simia Lar, apud Fischer.

Hylobates Lar, Lesson, apud Martin.

Hylobates albimanus, apud Schinz.

"Ungka étam" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Siam, Burmah, Tenasserim.

LIGHT-COLOURED VAR.

SYN.—Petit Gibbon, Buffon.

Simia Lar, β . Linné.

Pithecus variegatus, Geoff.

Pithecus variegatus, apud Kuhl.

Pithecus variegatus, apud Desmarest.

Hylobates variegatus, Ogilby.

Hylobates leuciscus, apud Cantor. Ann. and Mag. of Nat. Hist.

"Ungka puti" and "Wow-wow" of the Malays of the Peninsula.

* An excellent likeness of a young male Bornean Orang Utan, living in my possession upwards of two years, has lately been taken by Mr. Thornam, one of the artists of the scientific expedition on His Danish Majesty's Ship 'Galathea.'

The colour varies from blackish-brown to light-brown, yellowish or dirty-white, sometimes uniform, sometimes mottled. The index and middle toes, of both or of one foot, are in some individuals, of whatever sex or shade of colour, united by a broad web throughout the whole of the first phalanx; in some partially so, and in others not. The ribs vary from twelve ($7+5$) to thirteen pairs ($7+6$), as observed by Mr. Blyth, (Journal Asiatic Society 1841, Vol. X. p. 839.)

HYLOBATES AGILIS, F. Cuvier.

VAR. UNGKA ETAM, Martin.

SYN.—Ungka etam, Raffles.

Oungka, Hylobates Lar, F. Cuv.

Simia Lar, Vigors and Horsfield.

Hylobates Rafflesii, Geoff. apud Ogilby.

Hylobates variegatus, Müller apud Schinz*.

“Ungka etam” of the Malays of the Peninsula.

HAB.—Malayan Peninsula, (Malacca. Purlis, Keddah, Pungah.)

Sumatra.

The first phalanges of the index and middle toe are in some individuals of either sex, partially or entirely united by a web. Sometimes the first phalanx of the middle toe is partially united to the fourth.

An adult male examined, had thirteen pair of ribs ($6+7$), an adult female fourteen, ($7+7$), a young male on the left side thirteen ($7+6$), on the right twelve ($7+5$). In these three individuals the stomach was constricted at the fundus and the pyloric part, which characters, when compared with specimens of *Hylobates agilis* from Sumatra, will go far to decide the identity of that species and *H. Rafflesii*. On the Malayan Peninsula, the latter appears to be less numerous than *H. Lar*. The light-coloured Var. of *H. agilis* I have not seen.

HYLOBATES LEUCISCUS, Kuhl

SYN.—“Wou-wou,” Camper.

Simia leucisca, Schreber.

Simia moloch, Audebert.

Pithecus cinereus, Latreille.

Pithecus leuciscus, Geoffroy.

Pithecus leuciscus, apud Desmarest.

* Schinz gives as a synonyme: *Pithecus variegatus*, Geoff. which, however, is *Hylobates Lar*, Var.

Simia leucisca, apud Fisher.

Hylobates leuciscus, apud Ogilby.

Hylobates leuciscus, apud Schinz.*

HAB.—*Borneo*, ?

Java.

GEN.—*SEMNOPIITHECUS*, *F. Cuv.*

SEMNOPIITHECUS *OBSCURUS*, Reid.

SYN.—*Simia maura* ? Lin. *Lotong*, apud Raffles.†

Semnopithecus leucomystax, Temm. in MSS.

Semnopithecus obscurus, apud Martin.

Presbytes obscura, Gray, List of Mamm. B. M.

Semnopithecus sumatranus, Müller, apud Schinz.‡

Semnopithecus halonifer, Cantor, Proceed. Linn. Soc.

"*Lótong*" or "*Lótong étam*," of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*, *Pinang*, *Singapore*.

District adjacent to Singapore, in the Malayan Peninsula.

SEMNOPIITHECUS *ALBOCINEREUS*, Schinz.

SYN.—*Cercopithecus albocinereus*, Desmarest.

Simia albocinerea, Fisher.

Semnopithecus dorsatus, (young) Waterhouse MSS § apud

Presbytes cinerea, Gray, List. [Martin.]

Semnopithecus albimanus, Is. Geoff. ?

"*Ka-ka*" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

* Among the Syn. occurs *Ungka puti*, Raffles, which is *Hylobates agilis*.

† The Hab. Pinang and Singapore, in neither of which islands *Semnopithecus femoralis* appears to occur, tends to prove, that Sir S. Raffles did not, as it has been supposed, refer to that species. His short description indicates *S. obscurus* (Lotong,) the most common species in both islands. Sir S. Raffles evidently did not describe the living animal, or he would not have omitted one of the most striking characters, viz. the white marks of the face, which, in preserved specimens, become obliterated, so that the face appears uniformly black. The omission of this character by Sir S. Raffles, and subsequently by later describers of this species, has given rise to confusion.

‡ Schinz repeats *S. femoralis*, Martin, as a Syn. for *S. sumatranus*, and says in a note, that Müller in his monograph of *Semnopithecus* refers that species to his *S. sumatranus* (Schinz Syn. Mam. I. p. 39, note.) Were even the two identical, the species should not have been renamed, as *S. femoralis*, Horsfield, not Martin, would take precedence, being the denomination under which Dr. Horsfield described it in the *Appendix to the Life of Sir T. Stamford Raffles*, 1830.

§ Martin, p. 481, refers the young *S. dorsatus* to *S. femoralis*, but the description is that of the young of the present species.

The young of this species, described by Martin, p. 481, is from the peculiar distribution of the colours, as easily distinguished from the young of *S. obscurus*, as it is difficult to distinguish the adults of these two species. Both attain to the same size, have in common the shape of the body, the white marks of the face, and the general distribution of colours. In the adult of the present species the prevailing colours are clear ashy-grey above, and white below. On either parietal bone, the hairs form a whorl, and the anterior are directed forward, projecting beyond the eyebrows. The two whorls are distinct in the young, though the hairs of the head are too short to mingle with the long, erect, divergent, black hairs of the eyebrows. Just below the spot where the two whorls come in contact, the skull is naked, thus forming a rather broad, triangular forehead. The general colour of *S. obscurus*, both in the young and adult state, is considerably darker. On the upper parts a blackish, or brownish ash colour prevails, lighter below, which acquires in some individuals a whitish appearance, from the white skin of the stomach, which is but scantily covered with hairs. Of parietal whorls there is no trace; the hairs of the head, directed backwards, originate in a peak as far down as the glabella, and are smoothed down on the top of the head from the occipital crest backward.

SEMNOPIITHECUS CRISTATUS, Horsfield.

SYN.—*Simia cristata*, Chingkau, Raffles.

Semnopithecus pruinus, Desmarest.

Semnopithecus pruinus, apud Lesson.

Semnopithecus cristatus, apud Martin.

Presbytes cristata, Gray :* List.

Semnopithecus cristatus, apud Schinz.*

HAB.—*Pinang, Malayan Peninsula.*

• *Sumatra, Borneo, Banka.* •

The whitish colour round the eyes and the mouth is present, though less distinct in this than in the preceding two species.

SEMNOPIITHECUS FEMORALIS, Horsfield. •

SYN.—*Semnopithecus chrysomelas*, Muller, apud Martin and Schinz.

* Gray quotes *S. maurus*, Horsfield, and Schinz *S. femoralis*, Martin, as synonyms, both of which are species, in physiognomy, colours, and, as far as *S. maurus* is concerned, in habits distinctly different from the present one.

HAB.—*Purlis* (on the *Malayan Peninsula*.)

Borneo, Java (?), Sumatra (?).

In a young male of this, apparently everywhere difficultly procurable species, the face during life was intense black, except the white-haired lips and the chin, which were of a milk-white colour. In the preserved specimen, the latter soon changed into the dull brownish-black of the rest of the face. The interdigital membrane, often loosely connecting the first phalanges of the four fingers and toes in *S. obscurus*, *albocinereus*, *cristatus* and other Malayan monkeys, was also present in this individual, in which even the first and second phalanges of the index and middle toe were thus connected. In preserved specimens, the interdigital web becomes shrivelled and indistinct, and therefore, being at all times a very questionable, if not altogether inadmissible, specific character, ought in such state to be least relied upon. On its arrival at Pinang, the animal was in too sickly a state to allow of its natural habits being observed.

GEN.—*CERCOPITHECUS*, apud *Ogilby*.

CERCOPITHECUS CYNOMOLGUS, *Ogilby*.

SYN.—*Simia cynomolgus*, Linné.

Simia aygula, Linné.

Simia attys, Schreber.

Macacus cynomolgus, Desmarest.

Simia fascicularis, Raffles.

Cercocebus aygula, Geoff. apud Horsfield.

Macacus cynomolgus, apud Gray : List.

Macacus cynomolgus, apud Schinz.

“Kra” of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula*.

Sumatra, Java, Banka, Borneo, Celebes, Timor, Tenasserim,
• Nicobar Islands.

The first phalanges of the four fingers and toes, and in some individuals also the second phalanges of the toes, are united by a membrane.

GEN.—*PAPIO*, apud *Ogilby*.

PAPIO NEMESTRINUS, *Ogilby*.

SYN.—*Simia nemestrinus*, Linné.

Simia platypygus, Schreber.

Simia fusca, Shaw.

Macacus nemestrinus, Desmarest.

Simia carpolegus, Raffles.

Macacus nemestrinus, apud Gray, List.

Macacus nemestrinus, apud Schinz.

"Broh" of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Sumatra, Borneo.

The interdigital membrane of the first phalanges of the four fingers and index, and middle toe, occurs also in this species.

LEMURIDÆ.

GEN.—*NYCTICEBUS*, Geoffroy.

NYCTICEBUS TARDIGRADUS, Waterhouse, Cat. Zool. Soc.

SYN.—*Lemur tardigradus*, Linné apud Raffles.

Nycticebus bengalensis, Geoff.

Nycticebus javanicus, Geoff.

Loris tardigradus, Geoff.

Stenops javanicus, Van der Hoeven.

Stenops tardigradus, Wagner, apud Schinz.

"Kúkang" of the Malays of the Peninsula.

HAB.—*Pinang, Malayan Peninsula.*

Java, Siam, Tenasscrim, Arracan, Bengal, Sylhet, Assam.

The sublingual appendage is cartilaginous, of a white colour; the apex divided in a number of fine points. The new-born is of the same colour as the adult, but paler, and has the dense, soft fur, mixed with a number of long hairs, grey at the base, white at the point. In a male, measuring from the apex of the nose to the root of the tail one foot two and a half inches, the tail five-eighths of an inch, the dimensions of the intestinal canal, were:

Small Intestines,	. . . . .	3 feet $\frac{1}{2}$ inches.
Large ditto,	. . . . .	2 „ $3\frac{1}{2}$ „
Cæcum,	. . . . .	0 „ $3\frac{1}{2}$ „

GEN.—*GALEOPITHECUS*, Pallas.

GALEOPITHECUS TEMMINCKII, Waterhouse.

SYN.—*Lemur volans*, Linn. apud Marsden and Raffles.

"Kúbong" or "Kúrbong" of the Malays of the Peninsula.

HAB.—*Singapore, Pinang, and other Islands in the Straits of Malacca, Lancavy Islands, Malayan Peninsula.*

Java, Sumatra, Borneo, Pelew Islands, Siam.

Two individuals are never of precisely the same design and ground-colour, which latter varies from clear ashy-grey to greyish-brown or chesnut. The white spots on the back of the anterior extremities, appear to be constant in every age. Though there are four mammae, situated in pairs one above the other, close to the axilla, of a number of females with young, none had more than one offspring, which was carried wrapped in the wide mantle-like membrane. In several shot on the hills at Pinang, the stomach contained vegetable matter, but no remains of insects. In confinement, plantains constitute the favourite food, but deprived of liberty the animal soon pines and dies. The anterior margin of the broad smooth tongue has a fringed appearance, produced by a number of rounded papillae. In a male, measuring from the apex of the nose to the root of the tail one foot four inches, the tail nine inches, the intestinal canal was of the following dimensions :

Small Intestines,	4 feet 4 inches.
Large ditto,	7 „ 7 „
Cæcum,	0 „ 11 „
Costæ veræ seven pairs, spuriae six pairs.	

CARNIVORA.

CHEIROPTERA.

INSECTIVORA.

GEN.—RHINOPOMA, *Geoffroy.*

RHINOPOMA, *HARDWICKII*, Gray.

SYN.—*Vespertilio* (*Rhinopoma*) *Hardwickii*, Elliot.

HAB.—*Malayan Peninsula.*

Southern Mahratta country, Calcutta, Allahabad,* Agra,†
Mirzapore.

A single male, in no way differing from Bengal individuals, was obtained by Captain Congalton, H. C. Steamer 'Diana,' in a cave on an island in Girbee river, in Latitude 8° 0', on the Malayan Peninsula.

This species is provided with a true cæcum, the existence of which in all Cheiroptera has erroneously been denied, or restricted to the car-

* Numbers inhabit the subterraneous Hindoo place of worship within the Fort at Allahabad.

† In the Taj-Mahal.

diac cæcum observed in the genera *Vampyrus* and *Pteropus*. The present species, and *Megaderma spasma*, also possessing a true cæcum, thus present a higher organisation than has hitherto been attributed to Cheiroptera.

Length of the small Intestine, ..	$7\frac{2}{8}$ inches.
„ „ large ditto, ..	1 „
„ „ cæcum, ..	$0\frac{3}{16}$ „

GEN.—MEGADERMA, *Geoffroy*.

MEGADERMA SPASMA, *Geoffroy*.

SYN.—Vespertilio spasma, Schreber.

Megaderma trifolium, *Geoffroy*.

Megaderma spasma, apud *Fisher*.

Megaderma spasma, apud *Schinz*.

HAB.—Pinang, Malayan Peninsula.

Singapore, Java, Ternate.

Incis. $\frac{0}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

Length of the head and body $3\frac{2}{8}$ inches.

„ „ „ inter-femoral membrane, 1 inch.

Extent of the flying membrane, .. 14 inches.

The five caudal vertebræ project one quarter of an inch beyond the pelvis, but are completely enveloped in the inter-femoral membrane, and therefore not apparent. The inguinal warts are, as in the *Rhinolophi*, most developed in the adult female. A true cæcum, though smaller than in *Rhinopoma Hardwickii*, is present in this species.

Length of the small Intestines,	7 inches.
„ „ large ditto,	$1\frac{1}{16}$ inches.
„ „ cæcum,	$0\frac{1}{16}$ inches.

GEN.—NYCTINOMUS, *Geoffroy*.

NYCTINOMUS TENUIS, *Hoisfield*.

SYN.—Nyctinomus tenuis, apud *Fisher*.

Molosse grêle, *Temminck*.

Dysopes tenuis, *Schinz*.

HAB.—Malayan Peninsula.

Java, Sumatra, Borneo.

Two individuals had the back of a velvety snuff colour, becoming a shade lighter on the under-parts. Entire length of the larger four and four-eighth inches, of which the tail one and two-fourth inches. Extent of the flying membrane ten and four-eighth inches. In the size of the ears some difference exists in the two.

GEN.—TAPHOZOUS, *Geoffroy*.

TAPHOZOUS MELANOPOGON, Temminck.

SYN.—Taphozous melanopogon, apud Schinz.

HAB.—*Pulo-Tikus, Pulo-Lanúvy, Malayan Peninsula.*

Java, Caves of Kanner.

Temminck's description, as quoted by Schinz, is taken from the adult male, the Malayan individuals of which differ in having the black beard surrounded by a broad light-brown band, covering, like a pelerine, the chest and shoulders. The rest of the lower parts are either white or brownish-white. The flying membrane in the adult male is whitish; in the females and young males it is blackish or brownish between the legs, along the sides of the body and the arms. The colour of the female and young male is on the back of a more or less brownish mouse-grey, becoming much lighter or whitish beneath, but both are destitute of the black beard, which, out of a number of between forty and fifty from different Malayan localities, occurred but in seven males, although some of the beardless males in size and extent of flying membrane equalled, or even slightly exceeded, the bearded. The entire length of the largest male was four inches, of which the tail measured one inch.

Extent of flying membrane fifteen and four-eighth inches.

Dentition: Incis. $\frac{0}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

TAPHOZOUS SACCOLAIMUS, Temminck.

SYN.—Taphozous pulcher, Elliot MSS. apud Blyth.

HAB.—*Pinang.*

Java, Sumatra, Borneo, Celebes, Southern India.

In two males captured at Pinang in houses in the valley, the colours somewhat differ from Temminck's description, quoted by Schinz. In the larger, the head and back are of a sooty black, with a few white dashes, the lower parts of a pure white. The flying membrane is black

between the legs, along the sides of the body and the arms, and between the index, second and third fingers; the rest being dull semi-transparent white. The length from the apex of the nose to the posterior margin of the inter-femoral margin, is four and seven-eighth inches, of which the tail measures one inch. The extent of the flying membrane eighteen inches. Dentition as in *T. melanopogon*. The smaller differs in having the chest of a pale brownish-white, the abdomen and the pubes light rust-coloured, leaving the sides pure white. Mr. Blyth quotes *Taphozous pulcher*, Elliot, from Southern India, as being "black-brown above with white pencillings, and pure white below," (Journal As. Soc. XIII. 1844. p. 492,) from which, as well as from Mr. Elliot's specimen, at present in the Museum of the Asiatic Society, it appears that the Indian more resemble the Malayan individuals than those of the Indian Archipelago, described by Temminck. The internal surface of the gular sac secretes, an odorous oily fluid, of a light brown colour.'

GEN.—RHINOLOPHUS, *Geoffroy*.

RHINOLOPHUS, *Gray*.

RHINOLOPHUS AFFINIS, Horsfield.

HAB.—*Pinang*.

Java.

Of two individuals, the male is reddish-brown above, light greyish-brown beneath; the female is above golden fulvous, which becomes lighter on the lower parts.

Entire length of the male, .. $2\frac{4}{8}$ inches—female, $2\frac{7}{8}$ inches.

Tail, $\frac{4}{8}$.. female, $\frac{5}{8}$..

Extent of flying membrane, .. $11\frac{2}{8}$.. female, $12\frac{4}{8}$..

Incis. $\frac{2}{4}$ Canin. $\frac{1-2}{1-1}$ Molar, $\frac{5.5}{5.5}$

The inguinal warts are highly developed in the female.

HIPPOSIDEROS, *Gray*.

A. Adult male with a frontal pore, with a tuft of rigid hairs.

HIPPOSIDEROS DIADEMA, *Gray*?

SYN.—Rhinolophus Diadema, Geoffroy?

HAB.—*Pinang, Malayan Peninsula*.

Timor.

The Malayan individuals are, according to age and sex, of a more or less intense reddish or greyish-brown above, under certain lights assum-

ing a golden lustre, owing to the whitish points of the hairs ; beneath, they are of a lighter greyish-brown. Individuals occur of a light golden-brown, in colours resembling *Rhinolophus larvatus*, Horsfield. In the adult male, the livid flesh-coloured nasal appendage is larger, more complicated, and somewhat different from the figure given by Geoffroy St. Hilaire, (Ann. du Muséum XX, Pl. 5 and 6), which resembles the female in the simpler appendage and in the absence of the frontal pore. The latter organ, in the adult male, is large, secreting a yellowish brown oily fluid, the odour of which resembles that of *Arctictis Binturong*, Fisher. A female, during lactation, presented a great inequality in the development of the inguinal warts, of which the right measured one-quarter of an inch in length. At the time of her capture, it was reported that a young one had been "sucking" the right wart. Not having myself observed the young clinging to that organ, I cannot vouch for the correctness of a statement which, if authentic, would tend to explain the use, being to afford support to the young, when not sucking. The size of the Malayan individuals appears to exceed those from Timor, the entire length of the former being five and six-eighth inches, of which the tail measures two inches. Extent of the flying membrane twenty-one and a half to twenty-two inches. The extremity of the 2nd phalanx of the fourth and fifth fingers is bifid, or terminating with two minute diverging joints, a structure also existing in the Malayan individuals of the following species.

Incis. $\frac{2}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{5.5}{5.5}$

HIPPOSIDEROS NOBILIS, Gray.

SYN.—*Rhinolophus nobilis*, Horsfield.

Rhinolophus nobilis, apud Fisher.

Rhinolophe fameux, Temminck.

Rhinolophus nobilis, apud Schinz.

HAB.—*Pinang, Malayan Peninsula.*

Java, Sumatra, Timor, Amboyna.

The frontal pore is less developed than in the former species, as compared with which the present is of a more slender form, though of a size little less inferior. Entire length five and four-eighth inches, of which the tail measures two and one-eighth inches. Extent of flying membrane twenty-one and four eighth inches. Dentition similar to that

of *H. Diadema*. In the valley of Pinang single individuals of both species are at night abroad at all seasons, but during the rains they are particularly numerous.

HIPPOSIDEROS VULGARIS, Gray.

SYN.—*Rhinolophus vulgaris*, Horsfield.

Rhinolophus insignis, Var. apud Temminck.

Rhinolophus insignis, Horsf. apud Schinz.

Rhinolophus vulgaris, Horsf. *female of insignis*, apud Schinz.*

HAB.—*Pinang*.

Java.

Entire length four inches, of which the tail measures one and three-eighths; extent of flying membrane fourteen inches.

Incis. $\frac{2}{4}$ Canin. $\frac{1-1}{1-1}$ Molar, $\frac{4.4}{5.5}$

HIPPOSIDEROS MURINUS, Gray.

SYN.—*Rhinolophus murinus*, Elliot.

HAB.—*Pinang*.

Southern Mahratta Country, Nicobar Islands.

Entire length two and four-eighths inches, of which the tail measures one inch. Extent of flying membrane nine and four-eighths inches. Dentition similar to that of the last species.

B. Forehead simple.

HIPPOSIDEROS GALERITUS, N. S.

H. prosthematis simplicis membranâ transversâ latâ, altè erectâ, auricularum, latè pyriformium, apicibus laciniâ exsertis, besse postico lobuloque basali villosis; vellere longo, denso, molli, bicolore; suprâ saturatè, subtus pallidius-fusco-rufescenti.

Latet fœmina.

HAB.—*Pinang*.

Entire length three inches, of which the tail measures one inch. Extent of the flying membrane ten and four-eighths inches.

Incis. $\frac{2}{4}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{4.4}{5.5}$

The livid flesh-coloured nasal appendage is simple but large, occupying the whole upper part of the face and the forehead; the horse-shoe or

* The only individual of *Rhinolophus vulgaris*, Horsfield, observed at Pinang, happened to be a *male*.

nasal disk covers the short, rounded, hairy muzzle, which has two leaves on either side; the transversal membrane is concave, as broad and long as the horizontal horse-shoe, which it joins under a right angle, while its sides are almost in contact with the ears. The latter are sub-erect, broader than long, their breadth equalling the length of the head; the shape is broad, pyriform, narrowing towards the apex, which appears like a small artificially rounded flap, scarcely elevated above the level of the fur covering the vertex. More than two-thirds of the back of the ear is covered with fur, leaving a narrow naked line along the external margin, which, as well as the singular shape of the ear itself, affords a distinguishing character. The hairs are buff or whitish at the base, the other half of their length brown. The general colour of the upper parts is deep-brown, with a slight reddish hue, becoming a shade lighter beneath.

This species somewhat resembles *Hipposideros apiculatus*, Gray (*Vespertilio speoris*, Schneider, apud Schreber; *Rhinolophus speoris*, Geoffroy,) from which it however differs in the absence of the frontal pore, in the shape of the ears, and in colours. A solitary male was captured in the valley of Pinang.

GEN.—*VESPERTILIO*, Linné.

VESPERTILIO, Gray.

VESPERTILIO ADVERSUS, Horsfield?

SYN.—*Vespertilio adversus*, Fisher?

Vespertilio adversus, Temminck?

Vespertilio cineraceus, Blyth MSS.

HAB.—*Pinang*.

Java, Calcutta.

This bat having the characteristic distinction of the upper incisor, described by Horsfield, is above greyish-brown, beneath light-greyish, measuring in length three and two-eighth inches, of which the tail is one and four-eighth inch. Extent of flying membrane ten and four-eighth inches. It differs from *V. adversus* in having on each side five molars, of which but two are spurious, which character also obtains in *V. cineraceus*, Blyth MSS. and specimen in the Museum Asiatic Society, which (as observed by Mr. Blyth,) as well as the present, may prove varieties of *V. adversus*, Horsfield.

KIRIVOULA, Gray.

KIRIVOULA PICTA, Gray.

SYN.—Vespertilio ternatanus, Seba?

Vespertilio pictus, Pallas, apud Horsfield.

Vespertilio kerivoula, Boddaert.

Vespertilio kerivoula, apud Geoffroy.

HAB.—Pinang.

Java, Sumatra, Borneo, Ceylon.

KIRIVOULA TENUIS, Gray.

SYN.—Vespertilio tenuis, Temminck, apud Schinz.

HAB.—Pinang.

Java, Sumatra, Borneo.

A single male, in colours slightly differing from Temminck's, being above of a dark greyish-brown, many of the hairs with white points; beneath of a lighter shade. Entire length three and two-fourth inches, of which the tail one and four-eighth inch. Extent of flying membrane ten inches.

Incis. $\frac{2-2}{6}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{5.5}{5.5}$

Trilatitus, Gray.

TRILATITUS HORSFIELDII, Gray.

SYN.—Vespertilio tralatitius, Horsfield.

Vespertilio Gärtneri, Kuhl, apud Schinz.

HAB.—Pinang.

Java, Sumatra.

Scotophilus, Leach, apud Gray.

SCOTOPHILUS TEMMINCKII, Gray

SYN.—Vespertilio Temminckii, Horsfield.

Vespertilio Belangerii, Isid. Geoff.

* Vespertilio noctulinus, Isid. Geoff.

Scotophilus castaneus, Gray.

Nycticeius Temminckii, Schinz.

Nycticeius Belangerii, Temminck, apud Schinz.

Nycticeius noctulinus, Temminck, apud Schinz.

“Klāwah” of the Malays of the Peninsula.

HAB.—Singapore, Pinang, Malayan Peninsula and Islands.

Java, Sumatra, Borneo, Timor, Pondicherry, Calcutta.

As observed by Schinz, this species is very variable in its colours according to age, all of which variations occur in individuals inhabiting Pinang and the Malayan Peninsula. The following are the specific names attributed to different individuals of this species :—

1. *Vespertilio Temminckii*, as originally described and figured in *Zoological Researches in Java*. Back dark-brown; greyish-brown underneath. Entire length four inches six lin., of which the tail one five-eighth of an inch; Extent of flying membrane twelve inches.

2. *Scotophilus castaneus*, Gray.

3. *Nycticeius Belangeri*, Temminck, apud Schinz. Hairs of the back brown at the base, chesnut or olive-chesnut at the apex; beneath light yellowish-brown, isabella or whitish. Entire length $3\frac{1}{2}$ " of which the tail $1\frac{11}{16}$ " Extent of flying membrane 13".

Incis. $\frac{1-1}{6}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{4 \cdot 4}{5 \cdot 5}$

4. *Nycticeius noctulinus*, Temminck, apud Schinz, is the very young. Above more or less intense brown or rust-coloured; beneath isabella or light greyish-brown. Entire length three to three two-eighth inches, of which the tail seven-eighth to one two-eighth of an inch. Extent of flying membrane eight six-eighth to nine inches. In this state it has frequently been observed clinging to the mother.

Incis. $\frac{2-2}{6}$ Canin. $\frac{1-1}{1-1}$ Mol. $\frac{4 \cdot 4}{5 \cdot 5}$

This species is exceedingly numerous, forming large congregations in sheltered situations on the Malayan Peninsula, and in the caves on the numerous islands of limestone which stud the shores from Maulmein to Java, and in such localities large deposits of Guano occur. The latter, ("Ty Kláwah" of the Malays, i. e. bats' manure,) has been tried by agriculturists at Pinang, but has been found much less efficacious than the Guano obtained from the swift (*Collocalia*), producing the edible nests.

FRUGIVORA.

GEN.—PTEROPUS, *Brisson*.

PTEROPUS EDULIS, *Geoffroy*.

SYN.—Pteropus javanicus, *Desm.* apud *Horsfield*.

Pteropus Edwardsii, *Geoffroy*.

“Kalong” of the Javanese.

“Klúang” of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula and Islands.*
Java, Sumatra, Banda, Bengal, Assam.

GEN.—*CYNOPTERUS, Fred. Cuvier.*

CYNOPTERUS MARGINATUS, F. Cuv.

SYN.—*Vespertilio marginatus, Buchanan Hamilton, MSS.*

Pteropus marginatus, Geoffroy.

Pteropus titthæcheilus, Temm.

Pachysoma titthæcheilus, Temm.

Pachysoma brevicaudatum, Is. Geoff.

Pteropus brevicaudatus, Schinz.

Pachysoma Diardii, Isid. Geoff.

Pteropus Diardii, Schinz.

Pachysoma Duvaucellii, Is. Geoff.

Pteropus pyrivorus, Hodgson, apud Gray.

HAB.—*Singapore, Pinang, Malayan Peninsula and Islands.*

Java, Sumatra, Southern Mahratta Country, Bengal, Nipal.

The colour is very variable, not only individually, but according to age and sex, which has given rise to several supposed distinct species. But they all resemble each other in habits and dentition, they occupy one common place of rest, and their new-born, or very young, are of a uniform colour. The ears of the adult are, in all, more or less distinctly margined with white.

1. *Cynopterus marginatus.* Back reddish, or brownish-grey; lighter underneath.

2. *Pachysoma titthæcheilus.* 3. *Pteropus brevicaudatus.* Male: back reddish or olive-brown; a tuft of hair on the sides of the neck, the chest, and the sides of the greyish abdomen rusty, or orange-coloured. Female: above yellowish, or greyish-brown; beneath lighter. In some individuals from Malacca, the flying membrane is of a light reddish-brown.

4. *Pachysoma Diardii:* Back greyish-brown; abdomen greyish, brown on the sides.

5. *Pachysoma Duvaucellii*: pale greyish-brown.

The following is a description of a new-born. The upper part of the head, the nape of the neck, the back and the posterior surface of the humerus and femur, were covered with dense, soft, short hairs, of a dark greyish-brown; all the rest of the body was naked, of a greyish-black colour. The eyelids were not yet separated. The joints of the bones of the extremities were cartilaginous. The nails of the thumb and index were developed, but the feet and nails of the toes had already attained the size of the adult. The tongue was considerably extensile. The teeth present were:

$$\text{Incis. } \frac{4}{4} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Mol. } \frac{2.2}{2.2}$$

Entire length, one and four-eighth of an inch, of which the slightly projecting tail two-eighth inch. Extent of the flying membrane, six and four-eighth inches.

In an individual measuring two and four-eighth inches in length, with an extent of the membrane of nine inches, the face and the lower parts, excepting the throat, had become scantily covered with light brownish-grey, short hairs. The eyelids were separated. The shoulder, elbow, hip, and knee-joints, had become ossified, the other joints still remaining cartilaginous.

INSECTIVORA.

GEN.—*TUPAIA*, *Raffles*.*TUPAIA FERRUGINEA*, *Raffles*.

SYN.—“Tupai Press,” *Raffles* and *Horsfield*.

Cladobates ferrugineus, *F. Cuv.* apud *Schinz*.

Sorex Glis, *Diard* and *Duvaucel*.

Glisorex ferruginea, *Desmarest*.

Hylogale ferruginea, *Temminck*.

Herpestes, *Calcutta Journ. Nat. Hist.**

* Vol. II, p. 458, Pl. XIII½. The explanation accompanying this figure is as follows: “Searching for Col. Farquhar’s drawing of *Rhizomys Sumatrensis* already referred to, I found in the Society a drawing of a bushy-tailed *Herpestes*, differing merely from Mr. Hodgson’s *Gulo Urva*, in having the tail of one uniform colour with the body, without the yellow tip. There is no name or letter on the drawing to shew

“Tupai tana” of the Malays of Pinang.

HAB.—Pinang, Singapore, Malayan Peninsula.

Sumatra, Java, Borneo.

The young of this very numerous species in hilly jungle, is easily tamed, and becomes familiar with its feeder, though towards strangers it retains its original mistrust, which in mature age is scarcely reclaimable. In a state of nature it lives singly or in pairs, fiercely attacking intruders of its own species. When several are confined together, they fight each other, or jointly attack and destroy the weakest. The natural food is mixed insectivorous and frugivorous. In confinement, individuals may be fed exclusively on either, though preference is evinced for insects; and eggs, fish, and earth-worms, are equally relished. A short peculiar tremulous whistling sound, often heard by calls and answers, in the Malayan jungle, marks their pleasurable emotions, as for instance, on the appearance of food, while the contrary is expressed by shrill protracted cries. Their disposition is very restless, and their great agility enables them to perform the most extraordinary bounds in all directions, in which exercise they spend the day, till night sends them to sleep in their rudely constructed lairs in the highest branches of trees. At times they will sit on their haunches, holding their food between the fore-legs, and after feeding, they smooth the head and face with both fore-paws, and lick the lips and palms. They are also fond of water, both to drink and to bathe in. The female usually produces one young; she has four mammæ, the anterior pair of which is situated on the lower lateral part of the chest, the posterior on the side of the abdomen. On the lower surface of the tongue, the frenum is continued to within a short distance of the apex in a raised line, on either side of which the skin is thickened, fringed at the edges, and thus presenting a rudimentary sublingual appendage, somewhat similar

from whence it came, and to prevent its following the fate of Colonel Farquhar's *Rhizomys*, we here afford a copy of it.” Pl. XIII $\frac{1}{2}$ represents no *Herpestes*: the elongated muzzle, the proximity of the large eye to the ear, which is exposed, and not hidden by the hairs of the cheek, are characters foreign to every known species of *Herpestes*. The draughtsman has very correctly represented a *Tupaia*, and the drawing, reappearing as a *Herpestes* in the *Calcutta Journal of Natural History*, has, by Mr. Blyth, been traced to be the original of Pl. IX, *Asiatic Researches*, Vol. XIV, where it properly accompanies the description of *Sorex Glis*, (i. e. *Tupaia ferruginea*) of MM. Diard and Duvaucel.

to that observed in *Nycticebus tardigradus*; though in *Tupaia ferruginea* the fringes of the margin only are free, the rest being attached to the tongue, but easily detached by a knife. The lateral raised lines of the palms and soles, the posterior part of the first phalanges, and the third phalanx (second of the thumbs,) which is widened into a small soft disk, in fact all the points which rest upon the ground, are studded with little transversely curved ridges or duplicatures, similar to those observed under the toes, of some of the *Geckotidæ*, which fully account for the precision, the 'aplomb,' with which these animals perform the astounding leaps from below, barely touching with the soles the point d'appui above. In a cage, the 'Tupai will continue for hours vaulting from below, back downwards, poise itself for an instant, continuing back downwards under the horizontal roof, and regain the point of starting, and thus describe a circle—the diameter of which may be three to four times the length of the animal,—in far shorter time than is required for the description. In a young male, measuring from the nose to the root of the tail seven and three-fourth inches, the tail six and a half inches, the dimensions of the intestinal canal were:

Small Intestines, 3 feet $4\frac{1}{2}$ inch.; diameter $\frac{1}{8}$ inch.

Large ditto, 0 „ $3\frac{3}{4}$ „ „ $\frac{1}{5}$ „

Cæcum, 0 „ $0\frac{3}{4}$ „ „ $\frac{1}{16}$ „

Costæ veræ: 8 pairs; spurizæ: 5 pairs = 13 pairs.

This species* is infested with a Tick of the following description: *Ixodes Tupaia*. Body suboval, shining dark-green olive; scaly plate, palpi casing the pointed sucker, and the legs: pale reddish-brown. Length, when swollen, three-eighth inch.

GEN.—GYMNURA, *Raffles*.

GYMNURA RAFFLESII, Vigors and Horsfield.

SYN.—*Viverra gymnura*, *Raffles*.

“Tikus ámbang búlan,” *Raffles*.

HAB.—*Malacca*.

Sumatra, Singapore. •

In a district not distant from Malacca, the animal is said to be numerous, though not to be seen in other localities.

* Single light coloured individuals occur with the back, limbs and abdomen greyish, whitish, or isabella.

GEN.—*Sorex*, Linné.

Sorex murinus, Linné.*

SYN.—*Sorex myosurus*, Pallas, apud Schinz.

Sorex cærulescens, Var, Raffles ?

“Chinchorot” of the Malays of the Peninsula.

HAB.—*Pinang*.

Java.

Dark brownish-grey above ; beneath light brownish-grey. Feet and tail flesh-coloured in the living animal, changing to cinereous after death. In the young the colour is more of a bluish-grey, slightly mixed with brown on the back. Length of the head and body five and half inches ; tail three inches.

Incis. $\frac{2}{2}$ Canin. $\frac{0}{0}$ Molar, $\frac{8.8}{5.5}$

The present differs from the ‘Musk Shrew’ of Bengal (“Choochundr,”) in its proportionally broader, more developed, and from the head more diverging ear, which characters also distinguish it from *Sorex nigrescens*, Gray, which it somewhat resembles in its colours. The smell of musk, emitted by the adult animal, and which in the young is barely perceptible, is much less intense than that of the Bengal Musk Shrew.

CARNIVORA.

GEN.—*Ursus*, Linné

Helarctos, Horsfield.

Helarctos malayanus, Horsfield.

SYN.—*Ursus malayanus*, Raffles and Horsfield.

“Brúang” of the Malays.

HAB.—*Malayan Peninsula*.

Sumatra, Tenasserim Provinces, Assam, Nipal.

Colour of the young : snout and lips pale ferrugineous. Head, back, and outside of the limbs black, mixed with pale rust colour, in consequence of many of the black hairs having the point, or a part next to the

* The following Syn. are given in Gray's *Last of Mam.* in *British Museum* : *Sorex myosurus*, Pallas. Geoff. Ann. Mus. XVII. *S. Sonneratii*, and *S. giganteus*, I. Geoff. Mem. XV. *S. indicus*, Geoff. Mem. Mus. I. *S. capensis*, Geoff. Ann. Mus. XVII. *S. Ptilorides*, Shaw, Mus. Lever. *S. cærulescens*, Shaw, Zool. *S. crassicaudatus*, Licht. Säugeth. *S. nepalensis*, Hodgson. *S. moschatus*, Robinson, Assam. Olivier, Voy. Buffon. H. N. Suppl. VII.

point, of the latter colour. Ears, tail, paws, and inner side of the extremities shining black. The somewhat woolly hairs of the abdomen are faintly marked with ferrugineous, and are mixed with longer stiff black hairs. As observed by Schinz, the mark on the breast is very variable in its form. It may be compared to a crescent, assuming according to the smaller or greater breadth of the limbs, the shape of the letter U, of a horse-shoe, or a heart. In the living animal it is of a pale rust, or orange colour, in some individuals with a few small blackish spots, fading after death to a yellowish-white. A very old male presented the following dentition :

$$\text{Incis. } \frac{6}{6} \quad \text{Canin. } \frac{1-1}{1-1} \quad \text{Molar. } \frac{4}{6} \cdot \frac{4}{6} \begin{matrix} (2+2) \\ (3+3) \end{matrix}$$

In a young female, three feet in length, the intestinal canal measured fifteen feet. It had neither cæcum nor valve to mark the transition. She had ten grinders in either jaw, of which four were spurious, six true.

GEN.—ARCTICTIS, *Temminck*.

ARCTICTIS BINTURONG, *Fischer*.

SYN.—*Viverra* ? *Binturong*, *Raffles*.

Paradoxurus albifrons, *F. Cuvier*.

Ictides ater, *F. Cuvier*.

Arctictis penicillata, *Temminck*.

Ictides ater, *Blainv. Calcutta Journ. of Nat. Hist.**

“*Unturong*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Tenasserim, Arracan, Assam, Bhotan, Nipal.

Java and Sumatra are quoted by *M. Schinz*, but neither *Dr. Horsfield*, *Sir S. Raffles*, nor *M. Temminck*, (*Discours Preliminaire, Fauna Japonica*,) mention the *Binturong* as inhabiting either of the two islands.

* In the 3rd Vol. of *Calcutta Journ. of Nat. Hist.* p. 410, occurs the following passage : “The *Binturong* was first discovered in Java, but the first notice of its existence on the continent of India will be found in the second volume of this Journal, p. 457,” (sic!) “&c.” *Sir Stamford Raffles*, who published the first account of this animal, distinctly states, that it was discovered at Malacca, (not *Java*, as erroneously stated,) by *Major Farquhar*, and Malacca is situated on the continent of India as well as *Tenasserim*. The fact of its inhabiting *Bhotan*, was according to *Cuvier* (*Règne Animal*,) first made known by *Duvaucel*, and the author of the article “*Ictides*” in the *Penny Cyclopædia*, 1838, gives *Mr. Hodgson’s* authority of the *Binturong’s* inhabiting *Nipal*, (*Kachar*, though they occasionally occur in the central region of *Nipal*.)

The general colour of either sex is black, sprinkled on the body and extremities with pale ferrugineous, produced by some of the hairs having a part next to the point of that colour. In both sexes nearly all the hairs of the head, face and throat are thus marked, which communicates to these parts a whitish or greyish appearance. In the young of either sex there is a faint trace of a white spot over the eyes. The long ear-tufts are always black, the margin of the auricle being either white, or pale rust-coloured. The tail is black, but the hairs of the anterior or basal half, are whitish at the root, or in some uniformly of that colour. The pupil is vertically contracted by the influence of light; the iris is of a beautiful Van Dyke brown. In its habits the *Binturong* is both arboreal and terrestrial, and nocturnal, sleeping till the sun is below the horizon, when it displays great agility in searching for smaller quadrupeds, birds, fishes, earth-worms, insects and fruit. The howl is loud, resembling that of some of the Malayan *Paradoxuri*. The young are easily tamed, but the old animal retains its natural fierceness. Between the anus and penis is situated a large pyriform gland, exceeding two inches in length, partially divided by a deep naked fossa, commencing from the latter organ. The gland secretes a light-brown oily fluid, of a peculiar intense, but not fetid or sickening odour. In a young male, measuring from the nose to the root of the tail, two feet three and five-eighth inches, the tail two feet two and a half inches, the intestines were of the following dimensions:

Small Intestines,	..	..	7 feet 11 inches.
Large ditto,	..	..	1 foot 10 inches.
Cæcum,	..	..	0 $\frac{1}{2}$ inch.

The circumference of the small intestines about seven-eighth inches; of the large but little more, but the rectum was thickened two inches in circumference.

The short cæcum is crescent-shaped, or lengthened pyriform. The stomach is remarkably lengthened cylindrical, the parietes much thickened towards pylorus. Oesophagus enters close to fundus ventriculi, in consequence of which there is but a slight difference between the curvatures.

Length along the greater curvature,	..	1 foot 2 inches.
„ „ „ smaller „	..	1 „ 1 „

The circumference from cardia round fundus ventriculi measured five and a half inches; round pylorus two six-eighth inches. Both the gall-bladder and the spleen presented a remarkably elongated shape. The former organ, lengthened pyriform, measured in length two inches; ductus cysticus two and a half inches. The spleen, tapering to a narrow point, was half an inch broad, and eight and a half inches in length. Costæ veræ, nine pairs; spuria, five pairs = fourteen pairs.

GEN.—*MUSTELA*, *Linneé*.

PUTORIUS, *Cuvier*.

PUTORIUS NUDIPIES, *Fred. Cuvier*.

SYN.—*Mustela nudipes*, *Desmar. apud Schinz*.

“*Pulásan*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The muzzle and the soles of the feet are pale flesh-coloured. The animal is said to inhabit the densest jungle, and is most difficult to obtain.

MUSTELA, *Cuvier*.

MUSTELA FLAVIGULA, *Boddaert*.

SYN.—*Viverra quadricolor*, *Shaw*.

Marte à gorge dorée, *Desmarest*.

Mustela Hardwickii, *Horsfield*.

Martes flavigula, *Hodgson, apud Gray*.

“*Anga Prao*” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Nipal.

The Malayan individuals differ from those from Northern India, originally described, in having the fur shorter and less dense, the head pale-brown, the neck and back pale yellowish-brown, becoming darker towards the tail, which, as well as the posterior extremities, is black. The anterior extremities are greyish-brown; the feet and the streak behind the ear deep brown; the lips whitish; the throat and chest yellowish-white or ochreous; the scanty hairs of the abdomen pale brownish.

GEN.—LUTRA, Storr.

LUTRA NAIR, Fred. Cuvier.

SYN.—*Lutra indica*, Gray.

“Anjing Ayer” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

China, Bombay, South Mahratta Country.

LUTRA BARANG, Raffles.

SYN.—“Barang Barang” or “Ambrang,” Raffles.

Lutra leptonyx, Wagner, apud Schinz.*Lutra Simung*, Schinz ?*

“Mumrang” or “Amrang” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The young are very playful, and soon become sufficiently domesticated to roam about the house, and to appear when called. Its voice is a short shrill whistling, not unlike the sound of the cricket, but stronger. Its food is not confined to fishes and crustacea; birds and insects are equally relished. The muzzle is hairy, but in the old animal the hairs become rubbed off. The Malayan individuals appear to attain to a greater size than the Sumatran, described by Raffles. An old male measured from the apex of the nose to the root of the tail two feet eight and a half inches; the tail one foot eight inches. In a young male two feet and two inches, and the tail one foot two-eighth of an inch in length, the simple intestinal canal measured nine feet and one inch, with a circumference throughout of about two and two-eighth inches. No cæcum. Each of the kidneys consisted of ten loosely connected glands.

AONYX, Lesson.

AONYX LEPTONYX, Gray: List.

SYN.—*Lutra leptonyx*, Horsfield.*Lutra cinerea*, Illiger.

* In Schinz's diagnosis of *Lutra Simung* is said “ungvibus robustis falcularibus,” (“die Nägel an den Zehen sind stark und gekrümmt”) which if the passage refers to *Lutra leptonyx*, Horsfield, must be a mistake, as the original diagnosis expressly states “ungvibus brevibus sublanaribus.” As Schinz describes *Lutra Barang* “ungvibus minutissimis obtusis” *Lutra leptonyx* is probably meant, and thus the one species is mistaken for the other. •

Lutra perspicillata, Is. Geoff.

Mustela Lutra, Marsden.

Aonyx Horsfieldii, Gray.

Lutra Barang, apud Schinz?

"Anjing Ayer" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Java, Sumatra, Singapore, Nipal.

This, as well as the two preceding species, inhabits numerous the banks of the Malayan rivers, and all are at times used by the Malays in river fishing.

GEN.—*CANIS*, Linné.

CUON, Hodgson.

CUON PRIMÆVUS, Hodgson.

SYN.—*Canis primævus*, Hodgson.*

Chrysæus primævus, Hamilton Smith.

Chrysæus soccatus, Cantor.

"Anjing útan" of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Bengal, Nipal.

Some slight differences occur in the Malayan individuals. The inferior surface, the inside of the ears and limbs, the lips and throat, are of the same colour as the back, but much paler. A black carpal spot, like that of the wolf, is very distinct in the male, less so in the female. The young animal of either sex has a faint white spot with a few blackish bristles, situated nearly midway between the angle of the mouth and the ears. Of the wavy wool of the Buansu, the Malayan wild dog, inhabiting a tropical climate, has but a little on the inner side of, and immediately behind the ear; the posterior part of the abdomen is almost naked. The short bristles of the lips, cheeks, throat, and above the eyes, are all black. In habits, so fully described by Mr. Hodgson, and in size, the Malayan agrees with the Nipalese. In a young male, from

* Mr. Ogilby considers *Canis Dukhunensis*, Sykes, and *Canis primævus*, Hodgson, to be identical, and apparently not different from *C. sumatrensis*, Hardwicke, (*Mem. on the Mammalogy of the Himalayahs*, apud Royle.) Colonel Sykes, on the contrary, describes *C. Dukhunensis* as being "essentially distinct from *Canis Quao*, or *Sumatrensis*, Hardwicke."

the nose to the root of the tail two feet eight and a half inches in length ;
the tail one foot, the intestinal canal was of the following dimensions :

Small Intestines,	..	..	..	6 feet	2 inches.	/
Large, ditto, ..	..	..	..	0	„	10 $\frac{1}{2}$ „
Cæcum,	..	..	..	0	„	4 „

The latter intestine is spiral, much widened at the origin.

Costæ veræ 8 pairs, spuræ 5 pairs = 13 pairs.

The Malays mention another, black wild dog (“Anjing útan étam,”) as also inhabiting the densest jungle. A Hyena is also reported to occur on the Peninsula.

Mongrel curs, “pariah dogs,” of every description, infest every village, but apparently not uninhabited places, nor localities far distant from the dwellings of man. As they all may be said to be in a state of half domestication, and are of forms very different from the wild dog, which shuns the human presence, their origin cannot with certainty be traced to the Malayan Peninsula.

GEN.—VIVERRA, *Linneé*.

VIVERRA ZIBETHA, *Linné*.

SYN.—Viverra undulata, Gray.

Viverra melanurus, Hodgson	} Apud Gray : List.
Viverra orientalis, Hodgson	
Viverra civettoides, Hodgson	
Undescribed Civet, McClelland	

“Tanggallong” of the Malays of the Peninsula.

HAB.—Pinang, Singapore, Malayan Peninsula.

Southern China, Siam, Bengal, Khasyah Hills, Nipal.

Judging by the comparatively few individuals observed in the Straits of Malacca, this species would appear to be far less numerous, than the following. Of several, the largest, which was a female, measured from the apex of the nose to the root of the tail two feet and eight inches ; the tail one foot eight and a half inches.

VIVERRA TANGALUNGA, Gray.

SYN.—Viverra Zibetha, Lin. apud Raffles.

“Tangalung,” Raffles.

Viverra Zibetha, Lin. apud Horsfield.

Viverra Zibetha, apud Fred. Cuvier.

Viverra Zibetha, Lin. apud Schinz.*

“*Músang jebát*” of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula.*

Sumatra, Borneo, Celebes, Amboyna, Philippines.

This species is readily distinguished from *V. Zibetha* by a continuous longitudinal black band occupying the upper surface of the tail, the numerous irregular rings being separated only on its inferior half. (Gray : *Proceed. Zool. Society*, 1832, p. 63.) The number and distance of the half rings on the lower surface of the tail, vary in different individuals, some of which have either the entire tail, or the anterior half or third of the tail, thus marked, the rest being black. The very young animal is generally of a much darker ground colour than the adult, and the black marks are therefore less conspicuous. Under certain lights the colour appears uniformly black. *Viverra Tungalunga* and *Zibetha*, however similar in habits and general colours, neither live nor breed together. Placed side by side, the living animals present a marked dissimilarity of countenance, which although obvious to the eye, would be most difficult, if possible at all, to convey in words. The female has three pairs of Mammæ, and produces from one to three young. The Malays of the Peninsula distinguish by different names the *Zibetha* and the *Tungalunga*, but as they suppose the civet of the former species to be of better quality, perhaps because it is scarcer, they will frequently offer for sale individuals of the latter, exceedingly numerous species, imposing upon it the name of *V. Zibetha*: “*Tanggalong*” of the Peninsula. The largest individual of the present species observed, measured in length from the apex of the nose to the root of the tail three feet and one inch; the tail one foot five and a half inches. In a younger, a female, three feet five and a half inches in length, of which the tail one foot and one inch, the intestinal canal was of the following dimensions :

Small Intestines,	..	..	..	7 feet 5 inches.
Large ditto,	..	..	..	0 „ 9 „
Cæcum,	..	..	..	0 „ 1 „

Costæ veræ, seven pairs; spurizæ, six pairs = thirteen pairs.

* The true *Viverra Zibetha*, Linné, is quoted by Schinz under the denominations of *V. bengalensis*, Hardwicke (?), and *V. melanura*, Hodgson.

VIVERRICULA, Hodgson.

VIVERRICULA MALACCENSIS.

SYN.—*Viverra malaccensis*, Gmelin.

Viverra Rasse, Horsfield.

Viverra Gunda, Buchanan Hamilton MSS.

Viverra indica, Geoffroy.

Viverra bengalensis, Gray : Illustr.

Viverra pallida, Gray : Illustr.

Genetta Manillensis, Eydoux.

HAB.—*Malayan Peninsula.*

China, Philippine Islands, Java, Singapore, Cochin-China, Tenasserim Provinces, Bengal, Nipal, Hindoostan, Dukhun, Bombay.

On the Malayan Peninsula this species appears to be more numerous than *V. Zibetha* ; less so than *V. Tungalunga*, and in size inferior to either. The largest observed was three feet four inches in length, of which the tail one foot three and a half inches. In a male, measuring from the apex of the nose to the root of the tail, two feet and three-fourth of an inch, the tail one foot one inch, the dimensions of the intestinal canal were :

Small Intestines,	..	..	..	4 feet 0 inch.
Large ditto,	..	..	..	0 „ 8 „
Cæcum,..	..	..	..	0 „ 0 $\frac{3}{4}$ „

The three preceding species have the following characters in common—The pupil is vertical, oblong ; the iris of a rich brown. They are arboreal as well as terrestrial, preying upon the smaller quadrupeds, birds, fish, crustacea, insects and fruit. Naturally very fierce, they are scarcely reclaimable except in youth, but with age the original disposition returns. Their voice is peculiar, hoarse and hissing.

GEN.—PRIONODON, *Horsfield.*

PRIONODON GRACILIS, Horsfield.

SYN.—*Viverra* ? *Linsang*, Hardwicke.

Felis gracilis, Horsfield.

Viverra Hardwicke, Lesson.

Viverra gracilis, Desmarest, apud Schinz.

Linsang gracilis, Müller, apud Gray : List, and Schinz.

HAB.—*Malayan Peninsula.*

Java, Sumatra, Borneo, Siam.

The ground colour is buff, and the dark marks are of a deep snuff colour, inclining to black with purple reflection. Length from the apex of the nose to the root of the tail: one foot six inches, the tail one foot three six-eighth inches.

Mr. Rappa, for many years a dealer in objects of natural history at Malacca, who previously had been supplied with a figure and description of *Prionodon gracilis*, reported in a memorandum accompanying the specimen, that it had been captured in the jungle at some distance from Malacca. It was unknown to himself and to the natives. At first the animal was fierce and impatient of confinement, but by degrees it became very gentle and playful, and when subsequently suffered to leave the cage, it went in search of sparrows and other small birds, displaying great dexterity and unerring aim in stealthily leaping upon them. Fruit of every description it refused. Another younger individual was captured about the same time, but contrived to make its escape.

GEN.—PARADOXURUS, *Fred. Cuvier.*

PAGUMA, Gray.

PAGUMA LEUCOMYSTAX, Gray: List?

SYN.—Paradoxurus leucomystax, Gray?

Amblyodon auratus, Jourdan?

“Músang búlan” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Singapore, Sumatra.

In a single individual observed, the hairs of the body, limbs and anterior third of the tail, are greyish-yellow at the base, next bright rust-coloured, with the apex shining black, which produces a mixture of ferruginous and black, the latter prevailing on the nape of the neck, middle line of the back, and the anterior third of the tail. The hairs of the vertex and the ridge of the nose are dark at the base, with yellowish points. The large oblique whitish spot in front of the ear, produced by uniformly whitish hairs, is on either side blended with the whitish vertex and ridge of the nose, and is continued down the sides of the neck, forming a large broad arrow-shaped mark. The orbits are dark brown, the face, lips and throat pale brown. The long rigid white

whiskers are mixed with a few shorter black bristles. The feet are dark brown, the posterior two-thirds of the tail uniformly black. The lower surface and the inner side of the extremities are pale ferruginous. From the apex of the nose to the root of the tail: two feet three inches, the tail one foot eight inches.

PAGUMA TRIVIRGATA, Gray : List.

SYN.—*Viverra trivirgata*, Reinwardt, Mus. Leyd.

Paradoxurus trivirgatus, Gray.

“Músang ákar” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula*.

Singapore, Tenasserim.

The ground colour varies from yellowish, or brownish, to blackish-grey. Fur short, peculiarly soft, silky. The dorsal streaks are either continued, undulated, (the central nearly always,) or composed of separate black spots. Some individuals have a short white streak on the ridge of the nose. The largest male measured from the apex of the nose to the root of the tail, two feet two and a half inches; the tail two feet three inches.

PARDOXURUS MUSANGA, Gray.

SYN.—*Viverra hermaphrodita*, Pallas, apud Schinz.

Viverra fasciata, Gmelin?

Viverra Musanga, Marsden, Raffles.

Musang bulan, Raffles.

Viverra Musanga, Var. *javanica*, Horsfield.

Ichneumon prehensilis, Buchanan Halmilton MSS.

<i>Platyschista hermaphrodita</i> , Otto	} apud Schinz.
<i>Paradoxurus Pallasii</i> , Gray	
<i>Paradoxurus Crossii</i> , Gray	
<i>Paradoxurus dubius</i> , Gray	

Paradoxurus Musangöides, Gray.

Paradoxurus typus, apud Schlegel.

Paradoxurus felinus, Wagner, apud Schinz.

“Músang” or “Músang Pándan,” (when the tail is with white point: “Músang Búngkwang,”) of the Malays of the Peninsula.

HAB.—*Pinang, Singapore, Malayan Peninsula*.

Java, Sumatra, Borneo, Timor.

The ground colour and dorsal marks of this exceedingly numerous species are liable to considerable variations, the principal of which are noted by Schinz: individuals occur (probably of every species) with the apex of the tail white, with elongated white spots on the abdomen, with the tail spirally twisted. In most the dorsal marks become indistinct, or invisible in certain lights. The female has from one to three young, of colours similar to the adult, but less distinct, their fur is softer, somewhat woolly, mixed with longer stiff black hairs. The young is tamed without difficulty, and is sometimes kept in houses to destroy rats and mice. The *Paradoxuri* are in habits like the *Civets*. They have an elliptical pupil, vertically contracted by the influence of light. Their glandular secretion is of a peculiar, not civet or musk-like odour. The largest specimen of a great number, measured from the apex of the nose to the root of the tail two feet and half an inch; the tail one foot four and a half inches. In a male, measuring three feet one and a half inch in length, of which the tail one foot four and a half inches, the intestinal canal were of the following dimensions:—

Small Intestines,	..	..	..	5 feet 8 inches.
Large ditto, ..	..	..	..	0 ,, 5 ,,
Cæcum,	..	..	..	0 ,, 1½ ,,
Costæ veræ, seven pairs; spuria, six pairs = 13 pairs.				

PARADOXURUS (?) DERBYANUS, Gray.

SYN.—*Paradoxurus?* Zebra, Gray.

Hemigalea Zebra, Jourdan.

Viverra Boiei, Müller.

“Musang Bātu” or “Sángah Prao” of the Malays of the Peninsula.

HAB.—*Malayan Peninsula.*

Borneo.

The ground colour varies from pale ochreous to buff, and the dark marks in shape and number scarcely alike in any two individuals, from snuff colour to black. The species is apparently not numerous, and is celebrated among the Malays for its great agility. It is said chiefly to feed upon the larger birds, such as the *Argus* pheasant, which it will hunt down, following its prey till the strength of the latter is exhausted, when it falls an easy victim to the indefatigable pursuer. The slender vermiform make, the countenance and distribution of

colours ; the serrated, flattened false molars ; the soles, hairy between and under the toes, and slightly in the centre ; the somewhat removed thumb, are characters by which this animal differs from *Paradoxurus*, and forms a link between that genus and *Prionodon* in the same manner that *Viverricula* connects *Viverra* to *Prionodon*. The largest male observed measured from the apex of the nose to the root of the tail two feet ; the tail one foot and four inches.

GEN.—CYNOGALE, *Gray*.

CYNOGALE BENNETTII, *Gray*.

SYN.—*Viverra* (*Limictis*) *carcharias*, Blainville.

Potamophilus barbatus, Kuhl.

Cynogale barbata, Schinz.

HAB.—*Malayan Peninsula*.

Sumatra, Borneo.

The very young, of which two individuals, a male and a female, were found with the mother, differ from the adult in having a very soft, silky, dense fur, mixed with longer hairs, which are black, except on the chest and abdomen, where the apex is silvery. Over the tarsus and on the upper surface of the feet some of the hairs have a subterminal white band, close to the black apex. The posterior margin of the ear is hairy and of a silvery colour. This animal appears to be of rare occurrence on the Malayan Peninsula, and the natives are consequently not acquainted with it. The largest male examined measured from the apex of the nose to the root of the tail two feet three inches ; the tail eight inches.

(*To be continued.*)

Notes, chiefly Geological, on the Coast of Coromandel, from the Pennaur to Pondicherry. By Captain NEWBOLD.

The coast from the mouth of the Pennaur to Madras, is a sandy plain, covered with reddish sandy loam which occasionally passes into clay, and generally rests upon the bluish-black marine clay of the Coromandel. It has been already said, that the breadth of the latter stratum varies, and is interstratified with layers of sand and reddish clays;—the whole resting usually on granitic or hypogene rocks: nodules and masses of a concretionary sandstone are found imbedded in the sands close to high-water mark, often perforated by lithodomi. Magnetic iron sand is found in many situations mingled with the sea sand, derived probably from the hornblende and basaltic greenstone rocks. This iron sand occasionally, I suspect, contains potassium, and strongly resembles iserine in external character.

Farther inland, between the base of the ghauts and the sea, extend thin beds of laterite, and sandstone closely allied to laterite, passing into puddingstones and soft shells of various colours.

The puddingstones usually imbed rounded pebbles of white quartz, and of the older sandstone which crests the eastern ghauts near Nagghery, Udeggherry, &c.

The beds of this sandstone rarely exceeds three or four feet in thickness, and may be seen near Sri Permatoor, on the great western road, (vide Notes from Mangalore to Madras), and, according to native information, in the vicinity of Parmaulnaigpet, about six and a half miles to the E. by S. of Tripassore, a little north of the road to Madras. Their continuity, and that of the laterite beds, with which they are probably contemporaneous, has been much interrupted by aqueous denudation, which probably took place while the Coromandel Coast was emerging from the bed of the sea.

It is also probable that these sandstone strata were once continuous with those imbedding silicified wood at Pondicherry and Verdachellum in south Arcot.

These remarks are merely thrown out to elicit farther investigation and research into the age, and extent on the coast, of these interesting littoral deposits, by which we may be enabled, probably, to mark out the ancient lines of coast formed, as the land gradually rose.

From its flatness the plain of Coromandel has been usually neglected by geologists as of little promise, but I trust, these remarks will prevent observers from running over it in the dark.

The sandstones and slate clays should be diligently examined for organic remains, as after all, it is possible, they may be freshwater deposits.

Of the sea and its inroads upon the land, from the Pennaur to the mouth of the Cauvery, the natives preserve many wild traditions, which I have little doubt originated in a sinking of this part of the coast.

In a Mahratta MS. of the Mackenzie collection,* there is a legend of the origin of the town of Sri-hari-cota, on the south boundary of Telinghana, close to the west shore of the Pulicat lake, which states the submersion of another town; the ruins of which, according to the MS. are still to be seen underneath the water. Trisancu, a king of the Solar race, is said to have been founder of it.

The miracle of the sea shell passing by a subterranean passage to the Pandurangha temple, might have originated from the circumstance of subterranean beds of marine shells being found, as at Madras, &c. inland.

The Pulicat lake is a lagoon running down the coast from Deraz-patumam on the north, to Pulicat on the south, nearly forty miles long, and varying in breadth from a few yards to twelve miles. A spot of sand from a quarter of a mile to five miles broad, running parallel with the coast, separates it, excepting four narrow openings, from the Bay of Bengal. Three of these openings are at its northern and southern extremities, and the other between the hamlets of Ryadooroo and Day-ullum.

The lake is studded with numerous islets: its inland or western shore is low and sandy, furrowed by numerous rills which run down during the monsoon from the sides of the eastern ghâts, (here having the local name of the Pulicat hills), about eleven miles to the westward.

The lake is in general shallow, and its formation is attributed to the sea bursting through the sand-bank in front on the low ground inland, now its bed. I am not aware of any other tradition which refers its origin to the historic period, except that just alluded to.

* Madras Journal, No. 30, p. 86.

Madras.—Granite and the hypogene schists, have been before stated as the rocks basing the more recent deposits covering the level plain of Madras. In the bed of the river (Adyar) near Marmalong bridge, and on its right bank at the quarries for the old breakwater, in the park of Guindy, around the race course, it usually contains but little mica, being composed of grains of a greyish quartz, with white felspar usually weathered and earthy on the exposed bosses and blocks in which the rock makes its appearance. Much of the granite near the Little Mount I found to be pigmatitic, that is, a binary granite of felspar and quartz, without mica.

Laterite is seen overlying the granite at the breakwater quarries before mentioned, and I am informed by Capt. Worster, that beds of this rock occur about a mile north of Nabob's Choultry on the Poonamalee road;—also near Tremungalum, about two miles NE. of Santivellore; near Vungada, about two miles SE. from Sri Permatoor; at Cotrubaucum, half a mile north of Raja's Choultry, and about two miles north of Balchitty Choultry; besides the beds at the Red hills, about eight miles NW. from Madras, so ably described by Mr. Cole, and which occupying an area of about fifty miles, cover an undulating tract, elevated usually forty or fifty feet above the general level of the country. Those near Sri Permatoor tank, I have already noticed (vide notes from Mangalore to Madras.)

At the bases of St. Thomas' Mount and the Palaveram Hill, granite is seen outcropping, and it also forms some of the smaller hills in the vicinity of Palaveram.

Both the Palaveram Hill and that of St. Thomas' Mount, are composed for the most part of a massive variety of hornblende rock, in which stratification is indistinct.

This rock, though often entirely composed of black brilliant hornblende, at Palaveram is usually a dull olive-green colour, translucent at the edges, and appears to be a mixture of hornblende and felspar, with a small proportion of quartz, in an almost homogeneous mixture. This rock occasionally imbeds garnets, crystallized schorl, hornblende, and a little dark mica. A little to the SSE. of the Mount, near the tank, is a lateritic bed.*

The height of the Palaveram Hill, on which the bungalow built by Col. Coombes stands, Lieut. Ludlow informs me, is nearly $345\frac{3}{4}$ feet above the plain at its base.

Chingleput.—This is the judicial head-quarters and capital of the Jaghire of the same name; it is situated about thirty-six miles to the SSW. of Madras, at the base of a small cluster of hills; the loftiest not being higher than the Flagstaff hill at Palaveram, and composed of a precisely similar variety of hornblende rock (garnetiferous), and associated with binary granite, or pigmatite.

The hornblende rock passes into light shades of green. It has been largely used as a building stone in the construction of the fort, which is extensive, and said to be nearly two miles in circumference. "It, as well as the town, lies on a stream, which falls into the Palaur, about half a mile to the west, almost surrounded by this hilly cluster. A wet ditch surrounds the outer walls which enclose a citadel,—the remains of the ancient palace of the native princes, government offices, and barracks, &c. Near the outer gate is a weaving establishment; and on a neighbouring eminence stands the European burial ground. The native town is populous; the houses are, for the most part, built of mud, thatched, or tiled.

Chingleput was early a place of importance, and for some time the residence of the Hindu princes of the Bijanugger dynasty.

During the early wars, when the French and English were struggling for empire in the East, the occupation of Chingleput, which lies on the great southern road to Madras from Pondicherry, was a point of much consequence. It was captured by the French in 1761, but retaken the following year by Capt. Clive. It was here the English army under Sir Hector Munro retreated (11th September, 1780) from Conjeveram, after the fatal massacre of Baillie's detachment near Perambaucum.

The soil in the vicinity is sandy, but in some places overlies a stiff clay used for bricks and tiles. The cultivation is principally of rice, irrigated by a tank which lies to the east of the Madras road.

Carangooly.—The sandy bed, sometimes occupied by a muddy torrent of the Palaur, is crossed about two and a half miles SW. from Chingleput. It is about three-quarters of a mile from bank to bank. This river, which takes its rise in the table lands of Mysore in the elevated tracts, (their water sheds) between Colar and Nundi-droog, pursues a SE. course by Baitmungalum and Watlaconda-droog, to the Pullur gap in the eastern ghauts, whence it descends to the vale of Amboor. Here, following the north-easterly direction and slope of the valley which it

fertilizes, it washes the feet of the eastern ghauts, receiving many mountain tributaries to the base of Amboor-droog; whence, turning the northern flank of the Rajahpollum and Javadie hills, which bound the right of the valley, it escapes easterly by Paliconda to Vellore. Thence it crosses the Carnatic increased by the Poni; by Arcot, Wallajahbad, Conjevram, and Chingleput to the Bay of Bengal, into which it flows about three and a half miles, south of Sadras, in latitude $12^{\circ} 28' N.$ after a course of about 220 miles, marked during its progress through the Carnatic by a narrow, verdant, winding zone of rich vegetation.

The road from Chingleput to Carangooly lies at no great distance, for the first and greater part of its course, from the right bank of the river, over the plain on which the town and fort of Carangooly stand, to the eastward of the large tank, and about thirteen miles SSW. from Chingleput. A few low hills in the vicinity mark the prolongation of the bed of hornblende rock observed at St. Thomas' Mount, Palaveram, and Chingleput. The prevailing soil is a sandy loam.

Carangooly, like Chingleput, during our early wars with the French, was a military post of great importance, though now reduced to insignificance. The gates of the fort were blown open, and the place stormed by Capt. Davis (January 24th, 1781): Hyder's garrison was 700 strong.

The fort was dismantled by General Stuart, in February 1783.

Permacoil.—The route to Permacoil lies over a plain less cultivated and more jungly than hitherto; varied at Acherowauk by a range of hills running for two or three miles in a SW. direction, flanking the right of the road. At Permacoil the granitic rocks rise above the surface in clusters varying from 100 to 300 feet high. The chief mass is composed of felspar, quartz, mica, and hornblende, in some places veined by a porphyritic granite with large plates of mica. The mica is sometimes entirely replaced by hornblende in the same mass, and would be termed a syenite by many geologists. I picked up a few crystals of adularia in the gravelly detritus of a weathering vein, and some fine specimens of an iridescent felspar. The felspar, which prevails in the substance of the rocks, is reddish, and the mica dark coloured, but it sometimes occurs in rich gold coloured scales and plates.

The soil is a greyish, friable loam, passing into reddish and sandy, and usually rests on a bed of kunker; below which, in a bed of sand and gravel, water is found at depths of from eight to fourteen feet from the

surface. The surrounding country is generally rocky and jungly. Rice, raggi, kovaloo, and bajra are the staple articles of cultivation.

With the exception of two or three families of Palicars and Brahmins, speaking Telinghi, the inhabitants are chiefly of the Pallaywar caste, and speak Tamul: there are still a few Mussulmen left here. The town is situated a little south of the tank bund, at the western base of the rocks, and is said to contain about 600 houses.

The remains of the fort stand on a steep rock, overlooking the town, about 300 feet high, and not commanded by any of the surrounding heights. Like Carangooly and Chingleput, it became of importance as a military post during hostilities with the French. In 1760 it was taken after a severe assault by Sir Eyre Coote, who was wounded here; besieged by Hyder in 1781 but not taken, and again in combination with the French in 1782, to whom it was compelled to capitulate on the 6th May.

It was subsequently blown up and dismantled: but in the succeeding war with Tippoo, it was held as a post of observation by a company under an officer, which was cut off by Tippoo in 1791.

Murtandi Choultry.—This place is situated on the celebrated Red hills which run to the rear of Pondicherry, from which it is about four and a half miles NNE. These beds of sandstone, which extend probably farther to the NE. will be described more fully when speaking of Pondicherry. They overlie the Neocomien limestone beds, which are seen outcropping nearer the sea to the NE. in the vicinity of Conjimere, about ten miles north from Pondicherry, on the Madras along shore road, &c. which passes by Sadras and the seven Pagodas—the ruins of Mahabalipuram, or Mavellipuram, as it is called by natives. These ruins lie among a cluster of low rocks which project from a sandy spit running down the coast from Covelong to Hedoor, a distance of about sixteen miles in breadth. It varies from half a mile to one and a quarter of a mile. In front, dashes the everlasting surf; in rear lies a salt marsh of upwards of a mile broad in some parts, and communicating with the sea on the south and north extremities of the sand bank in its front, by two narrow openings. The principal sculptured rocks lie about two and three-quarter miles from the south extremity of the bank, almost abreast, but a little south of, the Chingleput hills already described. In the monsoon they are insulated from the main-land by the inundation of the salt marsh in their rear.

A series of bare granite rocks, naturally of fantastic contour, nearly a mile long and 120 feet high, has afforded the Hindu artist ample scope for the exercise of his chisel, which must have been wrought of the finest tempered steel, for which India, since the dawn of history, has been justly celebrated. The bronze tools of the Egyptians might answer well enough in the limestone quarries around old Cairo, in working the blocks which constitute the great bulk of the pyramid, but would be of little avail in the quarries of Syene, a type of whose granite we find in the redder felspar. Quaternary granites compose the great monolith *raths* of the seven pagodas—a mixture of red and white felspar, white quartz, dark mica, and hornblende. It is more than probable that Indian steel found its way into Egypt during the early traffic that is known to have subsisted between India, Judæa, Yemen, and Egypt. It is absurd to suppose, that the sharply cut and deeply engraved hieroglyphics which cover the granite obelisks of Egypt, were done with chisels of bronze, even armed with corundum dust.

Quintus Curtius informs us, that Porus presented Alexander with a quantity of steel as one of the most acceptable and valuable gifts India could offer.

The granite blocks here, as elsewhere in India, are subject to spontaneous concentric exfoliation and splitting. The globular mass apparently about sixty feet in circumference, which we see nicely poised on a convex mass of granite—the pat of butter petrified by the god of milkmaids, Krishna—is ascribable to the first process; and the rents in the sculptured rocks—one of which cleaving the monolith pagodas, was ascribed by Mr. Chambers to a violent earthquake—have doubtless been caused by the latter process of spontaneous splitting.

With regard to the Brahmanical history of the seas overwhelming the ancient city and rolling over its ruins at the fiat of the God of the Heavens, Indra, who, it is said, loosed the chains of the ocean and overwhelmed its wicked ruler Malecheren, there are few facts that can be relied on—except that pieces of pottery, Roman and Chinese coins, are occasionally washed ashore in storms, and the remains of ruins and sculptured rocks are at a little distance in the sea.

From a multitude of enquiries which I have made regarding the encroachment of the sea on various parts of the Coromandel Coast, I am led to think, that the shore has been subject, like that of the Baltic, to

undulations, causing the sea to encroach and recede in different parts. Marks on the rocks, as on those of the Baltic and Caspian, would serve to determine the question.

From the inscriptions hitherto deciphered, nothing decisive has been obtained as to the date of the sculptures. In the 3rd report, by Taylor, on the Mackenzie MSS. section 9, we find it stated that in the Cali Yuga, Singhama Nayadu, a zemindar of the Vellugotivara race, ruled at Mallapur, (Mavellipoor). In that time during a famine many artificers resorted hither, and wrought on the mountain a variety of works during two or three years. Ignorant people term these things the work of Visvacarma; but, (says the writer) the marks of the chisel remaining disprove that opinion. Besides Singhama Nayadu built a palace on the hill, of which a few fragments now only remain. "In another MS. we find a Singhama Nayadu mentioned as son of Vennama Nayadu, and who became head of his race, and whose brother made successful incursion against Canchi and the Pandya kings, and beat the Musulmans "

There must be always some doubt until the identification of this Singhama of the Cali Yug and the Singhama who lived at the time of the Mohomedan invasion, a period not more remote than the 7th century of the Christian era.

Mr. Walter Elliott, with the aid of inscriptions he has lately brought to light at Idian Padal, two miles north of Mavellipoor, in old Tamul characters, one of which bears the name of Tribhuvana Vira Deva, a Chola king—and other collateral evidence—infers that its rulers were in a state of independence during the 6th and beginning of the 7th centuries.*

None of these inscriptions bear the special number of the year, but Mr. Elliott mentions one, in the neighbouring hamlet of Parajaskaran Choultry—in the same character as those of Idian Padal, and Varaha Swami—as bearing the name of the reigning sovereign Vikrama Deva, and the date of 1157 of the Salivahana era. The other names of sovereigns that occur, are Kama Raja and Ati Rana Chanda Pahava.

These inscriptions referred merely to grants and sales. The time in which Tribhuvana Vira Deva ruled remains to be fixed. But even when this is accomplished, we shall be still in the dark as to the exact date of

* Madras Journal, No. 30, for June 1841.

these singular sculptures which resemble,* as Mr. Fergusson justly observes, in plan and design the Hindu series at Ellora, though many of their details are only to be found at Ajunta and Salsette. It is evident, however, that the rocks were executed under the direction of priests of Siva and Vishnu, as no traces of Buddhism or of the Jains are seen.

From the inscriptions hitherto brought to light, I coincide with Mr. Elliott in supposing that the character in which some of them are written, (Grantham and Nagri) are not older than the 6th century. The freshness of the chisel-marks on the granite on which Mr. Taylor and some other antiquarians found, in part, their suppositions of a still more modern origin, (viz. from 300 to 500 years) cannot be relied on, as the marks in the quarries of Syene, and in the defile leading from Thebes to Cossier testify.

One general remarkable feature in these sculptures remains to be noticed, viz. that they have been left apparently in haste, being all unfinished. Mr. Goldingham mentions a tradition of the workmen, who had emigrated from the north, having suddenly been recalled by their prince before they had completed them. This tradition, and the similarity of the sculptures to those of the Deccan, are in favour of the theory that they are not the work of the inhabitants of the country, yet the inscriptions in the old Tamul character must have been executed probably at a later period than the others, under the directions of the Tamul or Chola princes, or priests.

I am not aware whether the inscriptions on the monolith *Ruths* have as yet been fully deciphered. It is probable they may throw light on the era of the Ati Rana Chanda, the lord of kings, who is declared by the inscription on granite, (north of the pagoda, two miles north of the place) to have built it; and of the Kama Rajah who founded the temple to Siva, according to the Sanscrit inscription in the temple of Ganesa. The antiquity of these inscriptions beyond a certain era may be negatively inferred from the absence of the date either Vikramaditya or Salivahana.

The Revd. Mr. Taylor, who has catalogued the Mackenzie inscriptions, states, that he has not met with inscriptions with a defined year higher

* Journal Royal As. Soc. Part. I, No. XV, p. 88.

up than the 10th century*. I have only met with one of the 9th century on stone, but copper grants have been found with earlier dates extending to the 5th century.

Pondicherry.—From Murtandi to Pondicherry, the loose sandstone of the Red hills extends on the right, and a sand-covered beach on the left. The nature of the substrata at Pondicherry has already been described in the notes from Pondicherry to Beypoor.

A Canal Act of the Emperor Akbar, with some notes and remarks on the History of the Western Jumna Canals. By Lieut. YULE, Engineers, First Assist. W. J. C.

For the following translation of a Decree of the Emperor Akbar, forming an interesting Appendix to the History of the Canals, given by Colonel Colvin in the 2nd volume of the Journal of the A. S., I am indebted to the kindness of Capt. S. A. Abbott, in charge of the Kythal district, who obtained the Persian copy from the parties named below, residents of Dhátrat, a town on the southern boundary of Kythal, just at the point where the Hansi branch of the Western Jumna canals enters the Chitang Nálá, in the old channel of which, deepened and widened, the canal waters flow to their termination at Baháderá, in the Bikaner territory.

Translation of a Sanad of Akbar Sháh Bádsháh, dated month of Shawál, A. H. 978, [A. D. 1568] at Fírozpúr, in the Province of Lahaur. Obtained from Abdul Samad and Abdul Mustakím, Pírzádahs at Dhátrat, being four leaves abstracted from a book which bears the appearance of considerable antiquity.

“ My Government is a tree, the roots of which are firm in the earth, and being watered by the waters of God’s grace, its branches reach to Heaven. In acknowledgment of God’s mercy in establishing this great empire, my desire, purer than water, is to supply the wants of the poor ;

and the water of life in my heart is larger than the sea, with the wish to dispense benefits, and to leave permanent marks of the greatness of my Empire, by digging canals, and founding cities, by which too the revenues of the Empire will be increased.

“ God says, sow a grain, and reap sevenfold(*a*). My desire is to reap one-hundredfold, that my crown may become wealthy, and that the zamindars may obtain double returns.

“ The seeds sown in this world, are reaped in the next.

“ The Omnipotent God gives power to whom he pleases.

“ The following is the best purpose to which my wealth can be applied, viz.—

“ The Chitang Naddí, by which Fíroz Sháh Bádsháh, two hundred and ten years ago, brought water from the nálás and drains in the vicinity of Sádhaura(*b*), at the foot of the hills, to Hánsí and Hissár, and by which for four or five months in the year water was then available, has, in the course of time, and from numerous obstacles, become so choked, that for the last hundred years, the waters have not flowed past the boundary of Kythal, and thence to Hissár, the bed has become so choked, that it is scarcely discernible ; since which time, the inhabitants of those parts have become parched with thirst(*c*), and their gardens dried up.

“ Now that I have given the district (Sarkár) of Hissár to the great, the fortunate, the obedient, the pearl of the sea of my kingdom, the star of my government, the praised of the inhabitants of the sea and land, the apple of my kingdom's eye, my son Sultán Muhamad Salím Bahádur(*d*), (may God grant him long life and greatness) ; my wisdom wishes that the hopes, like the fields of those thirsty people, may, by the showers of liberality and kindness, be made green and flourishing,

(*a*) “ The similitude of those who lay out their substance, for advancing the religion of God, is as a grain of corn which produceth seven ears, and in each ear a hundred grains.”—*Sale's Korán, Ch. II.*

(*b*) Sádhaura, a town of the Ambálá district, about twenty miles west of the Jumna. The river flowing past Sádhaura is the Markanda, but the sources of the Chitang are only seven, or eight miles distant.

(*c*) In Hariáná the springs have been raised, since the canal was re-opened, in some instances as much as sixty feet.—Capt. Baker's Report on the Sutlej and Jumna Canal.

(*d*) Afterwards the Emperor Jahángír, who was at this time under two years of age. “ The Sirkár of Hissár Fírozeh, ever since the conquest of Hindoostan by the Moguls, has constituted the personal estate of the heir apparent of the empire”—*Rennel.*

and that the canal may, in my time, be renewed, and that by conducting other waters into it, it may endure for ages.

“ For God has said, from water all things were made. I consequently ordain, that this jungle, in which subsistence is obtained with thirst, be converted into a place of comfort, free from that evil.

“ Consequently, in the year of the Hijra 977, my Farmán, bright as the sun, and obeyed by all the world, went forth ; that the waters of the nálás and streams at the foot of the hills at Khizrábád(*e*), which are collected in the Sonb river and flow into the Jumna, be brought by a canal, deep and wide, by the help of bunds, &c. into the Chitang Naddí, which is distant from that place about one hundred kos(*f*), and that the canal be excavated deeper and wider than formerly, so that all the waters may be available at the above mentioned cities, (Hansi and Hissár) by the year 978.

“ Behold the power of God, how he brings to life land that was dead(*g*).

“ Truly a canal is opened, and from the source to the mouth, although the zamindars and cultivators take by cuts abundance for their crops, it is still sufficient to meet the demand.

“ Because this canal was renewed for the sake of my beloved son, in compliment to him, whom, in his childhood, I call *Shekho*, and because in Hindustani a canal is called *Nai*, I have called this canal the *Shaikh Nai(h)*.

“ And whercas Muhamad Khán Tarkhán was superintendent of this work from first to last, I have conferred upon him the office and title of Mír-áb.

[Here follows a flourish of the writer of the Sanad.]

“ The following verses have arisen from the ocean of my heart to the shores of my lips :

“ Muhamad Akbar Ghazí Jaláluddín.

“ He is the king of this age, and equal to king Jamshaid.

(*e*) Khizrábád, a Sikh town near the debouchement of the Jumna from the Hills, and the present Delhi Canal head.

(*f*) Dhátrat, where the present canal joins the Chitang, is by the line of the banks about 130 miles (pretty exactly 100 kos of the country) from Khizrábád.

(*g*) God sendeth down water from Heaven, and causeth the Earth to revive, after it hath been dead.—*Sale's Korán*, Ch. XVI.

(*h*) This title appears to have been very short lived. I am not aware that the word *Nai* is now applied in this sense in any of our canal districts, but I learn that it is the Panjábí corruption of *Naddi*, and is commonly applied by the Sikhs to a river or water-course. The valley of the Ghagar is called *Naili*.

“ His throne is the throne of Faridún and Kai.

“ He is like unto Khizr, and from the waters of his generosity every thing has life.

“ He is such a king, that from the canal of his liberality, the garden of the world is green all the year round.

“ A canal by his orders was carried to Hissár ;

“ For the sake of the Prince Salím of blessed steps.

“ A canal like milk, and that milk full of fish ;

“ Its waters like honey, and pleasanter than wine.

“ The king in his great kindness gave Muhamad Salím the title of Shekho, because his Pír (spiritual patron) was a Shaikh(i).

“ He consequently called this canal Shaikh Nai.

“ May the Bádsháh and Prince live for ever.

“ The date of excavating this canal is to be found in the following words :—

(ج) اباديني

“ Tarkhán obtained the title of Mír-áb for his labours, because he carried the waters of the canal in every direction.

“ As long as the new moon, like a boat, sails in the waters of the blue heavens, so long may the waters of this king's generosity irrigate the garden of the world.

“ Whereas I have ordered that the waters be collected in this canal, and that it be made so wide and deep to Hissár, that boats may ply upon it in every part ; it is my will that the superintendent build bridges and bunds wherever necessary(k), that at the season of cultivation a sufficient supply of water be given to all who aided in excavating the canal, and they obtain water all the year round.

(i) It is said that Akbar having had no child who survived infancy, made a pilgrimage to offer his prayers for posterity at the shrine of Mugnúddin Chishtfat, Ajmir. He was there directed to seek the intercession of the Shaikh Salím Chishtfa Sikrí ; and shortly afterwards the favourite Sultana was delivered of a son, who in honour of the saint was called *Shekho Salim*. A village on the canal near Hissár bears the name of Salfma Shekhopoor.

ا ب د ش ي خ ن ي (ج)

(k) The only old bridges now existing between the canal head and Hansi are, that called the Gharaunda bridge, near Karnal, and one at Safidan ; both massive structures with pointed arches.

“ Also, that on both sides of the canal down to Hissár, trees of every description, both for shade and blossom, be planted(*l*), so as to make it like the canal under the tree in Paradise, and that the sweet flavour of the rare fruits may reach the mouth of every one, and that from these luxuries a voice may go forth to travellers, calling them to rest in the cities where their every want will be supplied, and I trust that, from the blessing attending this charity, the garden of goodness may remain ever green, that the benefits of the blessing may be incalculable, and that from it, I may obtain eternal reward. ,

“ Thanks be to God who has enabled me to do this, which, without his instruction, I should not have performed.

“ It is necessary that every one acknowledge the person appointed to this work, and recognize no partner with him.

“ Should it be necessary to construct a bund, or any other work on the canal, all Shikkdars(*m*), Chaudrís, Mukaddams, and Rayats, whether of the Khalsa or of other Parganahs, will give the necessary assistance in labourers, &c. and delay not.

“ Every Parganah will be satisfied with the number of cuts made by the Mír-áb, and take no more, and on every occasion abide by his directions. He has the power to punish as he sees fit every one who takes water out of season ; whoever disobeys his orders will, after investigation, be punished as an example to others.

“ The superintendent is particularly cautioned to see that the cuts in every Parganah are equally and justly distributed, and in this matter to consider every one on an equality ; not to permit the strong to oppress the weak, and so to act as to please both God and man.

“ The inhabitants of both sides of the canal will abide by these orders, and obey all the high, enlightened, concise, &c. &c. farman^s of the king.”

This document will be regarded as a very curious one by all who take interest in the past history, as well as in the present and prospective utility of the canals of Hindustan, suggesting as it does a fact which history appears to have forgotten, and which we have not ascertained

(*l*) Excepting a few of the different kinds of *Ficus* scarcely any old trees now exist on the canal banks.

(*m*) *Shikkdár*, a revenue officer.

without some degree of pleasure, namely, that the Jumna canals, as a perennial source of supply to a thirsty land, owe their origin to the greatest of Indian princes.

The question, however, is a difficult one on account of the universal prevalence of the belief that Fíroz Sháh drew a canal *from the Jumna* to Hissár, and from the obscurity of the accounts of the various channels excavated by that king. The only books bearing on the subject to which I have access, are Dow's *Firishta*, and Rennel's *Memoir on the Map of India*.

The words of *Firishta* are as follows :—" In the year 757, between the hills of Mendoulí and Sirmoor, he (Fíroz) cut a channel from the Jumna, which he divided into seven streams ; one of which he brought to Hansi, and from thence to Raeesen, where he built a strong castle, calling it by his own name. He drew, soon after, a canal from the Cagar, passing by the walls of Sirsutti, and joined it to the rivulet of Kera, upon which he built a city, named after him Fírozeabad. This city he watered by another canal from the Jumna."(*n*)

The seven streams I cannot explain. " Raeesen, (though this name is not now recognizable) where he built a strong castle, calling it by his own name," is doubtless Hissar Fírozah, or " the castle of Fíroz." The remainder of the sentence seems almost inextricable from its obscurity, and probably, as Major Rennel suggests(*o*), contains a jumble, arising from the multitude of excavations made by King Fíroz, and the number of cities to which he gave his name. There appears, however, no reason to believe, according to Rennel's hypothesis, that a canal was ever brought to Delhi before the time of Sháh Jahán.

The *city of Sirsutti*, which Major Rennel is a little puzzled to fix, would seem to be *Sirsa*, for the following reasons—It was (Rennel

(*n*) Dow's *Firishta*, I. 305. A more exact translation than Dow's of the passages relating to the excavations of Fíroz, from a copy of *Firishta* in the palace library at Delhi, is given by Mr. Seton, Resident at Delhi, in a letter to Government, on the subject of restoring the canals, dated September 11th, 1807. But, in the words quoted, there is no material difference, except in the names of Hansi and Raeesen, which Dow writes '*Hassi and Beraisen*.' But the system of water carriage on the canals which Dow attributes to Fíroz in the following sentence, appears to be a mere embellishment.

(*o*) " It may probably be a jumble of two sentences, which relate to different cities together. The *river Kera*, and *Fírozeabad* may relate to the city of Fírozepoor, at the conflux of the Sutlege and Beyah, and the canal from the Jumnah to Fírozeabad, a city founded by Fíroz in the vicinity of old Delhi. * * * * Capt. Kirkpatrick notices an obscurity in the text of *Firishta* in this place.—*Rennel*, page 74.

p. 76) at the end of Timur's third march from Bhatner to Samána, and four marches distant from the latter place. Now *Sirsa* lies directly in the road from Bhatner to Samána; it is upwards of forty miles distant from the former and about eighty-five from the latter. This is easily reconcilable with the number of marches given, especially as two of these seven are stated to have amounted to 32 kos; which, if we take somewhat under 60 miles, the remaining five marches would average 14 miles each, and three such marches would just give the distance from Bhatner to Sirsa. Firishta also states that Timur having taken and pillaged the town of Battenize (Bhatner), and after that *Surusti*, advanced to Futtchabad(*p*). This seems to fix the identity of Sirsutti with Sirsa. But again, Ibn Batuta relates, that on his journey from Multán to Dehli, after travelling four days from Ajúdahan, he arrived at the city of Sirsutti, a large place abounding in rice, which was carried thence to Dehli. And from Sirsutti he proceeded to Hansi(*q*). Now Sirsa is about 100 miles distant from Ajodin, (or Pák Patan) on the Gharra, in the direct line towards Hansi. And the rich valley of the Ghagar might well supply the abundant rice crops.

The canal then which Fíroz drew from the Ghagar under the walls of Sirsutti, is in all probability the Choya nálá, which issues from the Ghagar near Múnak, passes close to Sirsa, and bears evident traces of having been partially, at least, an excavated channel(*r*). The mention of its junction with "the rivulet of Kera" is indeed unintelligible. The nálá in fact joins the Ghagar again, not far from Sirsa, and a short distance below their union, the Revenue map shows a village called Fírozabad. I should be curious to know if at this village exist any remains of greatness, from which we might suppose it to be the city alluded to by Firishta.

The remainder of the sentence we must leave alone. Hissár Fírozah might indeed have been watered by a canal from the Ghagar as well as from the Jumna(*s*), but certainly not by a canal from the Ghagar passing under the walls of Sirsutti or Sirsa.

(*p*) Dow II. p. 4.

(*q*) Ibn Batuta, p. 110.

(*r*) See Capt. Baker's printed report on the Ghagar.

(*s*) And probably was. For the late Major Brown traced an old channel from the vicinity of the Ghagar, in the direction of Hissár. This, however, the natives called an old bed of the Sirsutti river. But the Sirsutti has a gift of ubiquity!

Major Rennel's words with regard to the Hissár canals are as follows : " It appears that previous to the building of Hissár, Fíroz had made a canal from the Jumna, near the northern hills, to Safidún a royal hunting place ; for the purpose of supplying it with water. This canal was in length 30 royal cosses or full 60 G. miles ; and it passed by Karnál and Toghlukpoor. After the foundations of Hissár were laid, he drew two principal canals to it ; one of which was a prolongation of the canal of Safidún, the whole extent of which was then 80 (common) cosses, or about 114 G. miles. The other principal canal was drawn from the Sutlege river to Hissár Fírozabad. The outlet and course of this canal is not so clearly defined as the other : Capt. Kirkpatrick, to whom I am indebted for the information concerning Hissár and its canals, had it from a history of Fíroze written by *Shumse Seraje*, soon after the death of that great monarch which happened in 1388."

With regard to this Sutlege canal to Hissár Fírozah having ever been successfully executed, we may feel sceptical. The only line within possibility would be from the neighbourhood of Rupar to the Sirhind nála, and thence crossing the Ghagar into the Hissár district, according to the general line sketched by Capt. Baker in 1841. But leaving this and turning to the Safidún canal, we remark that in Hodgson and Herbert's map, a branch of the Chitang is represented as quitting the main channel and passing within a short distance of Safidún(*t*). And this, guided by the *Sanad* before us, we might suppose to be the original canal of Fíroz, were not the statement so distinct that his canal was drawn from the Jumna. Toghlukpúr I have no knowledge of, but the mention of Karnál points to the existing line of canal, as the Chitang is ten miles distant from that city. It is difficult to doubt this evidence, and yet it is almost equally difficult to throw overboard the clear statement of Akbar's *Sanad*. It is indeed possible that Fíroz may have connected the Chitang at a much higher point of its course with the Jumna, by a cut which could only convey a supply of water into the nála when the river was at high levels ; or that a canal from the Jumna was by Fíroz Sháh attempted unsuccessfully, upon which recourse was had to the

(*t*) " Of this branch all I am aware of is, that in seasons heavy of rain great floods pour into the canal near Barod, said to be consequent on the destruction of the earthen dams of the Chitang.—*Col. Colvin in J. A. S. II. 106.*

temporary supply derivable from the Chitang, and as the latter flows for sixty miles almost parallel to the Jumna and at no great distance from it, a misrepresentation thus arose. Otherwise we can only suppose that Akbar, in self-glorification, falsely represented his own renewal and repair of his predecessor's work, as an original enterprize of his own.

Singularly enough the *Sanad* itself does not speak of the new canal having been fed from the Jumna, but "from the nálás and streams at the foot of hills which are collected in the Sonb river and flow into the Jumna." But the Emperor speaks of his canal as capable of supplying water all the year round, and the Jumna is the only accessible source of such a supply. Doubtless then as now, the supply of water *crossed* the Sonb, that is, flowed *into* it and again *out* of it, so that the canal might with truth be said, to be drawn from nálás collected in the Sonb.

It is certainly somewhat singular that Firishtā, who flourished in the latter part of Akbar's reign, and has made prominent mention of the ancient excavations of Fíroz, should not have alluded to this work. But the historian residing in the Deccan had probably no personal knowledge of the work, whilst contemporary documents would be less accessible than those relating to past times. It is true also that the Hansi canal is still known universally as the Canal of Fíroz, and the name fondly bestowed by Akbar in honour of his infant heir has been utterly forgotten(*u*). But new names always adhere loosely among the many: *Dehli* and *Agra* are likely to outlive the remembrance of *Sháhjáhánábád* and *Akbarábád*, and though the canals have had as many names as a Parisian *place* during the Revolution(*v*), yet Nahr Fírozah, the first name known to the people, keeps its place in their mouths.

There seems no good reason to doubt the genuineness of the *Sanad*. It is dated in the month of Shawál A. H. 978, from Fírozpúr in the Súbah of Lahaur. Now it appears from Firishta, that Akbar, on the

(*u*) Akbar appears to have been particularly fond of this kind of nomenclature. He called the new Súbah of Kandish *Dándish*, after his son, Daniel.—(*Rennel*.)

(*v*) Some of these names are—

Nahr Fírozah.
Shakh Nai.
Nahr Bihisht.
Fyz Nahr.
Sháh Nahr.

birth of his son Murád, in the first month of 978, went on a pilgrimage to the shrine of Muyínuddín at Ajmír, thence by way of Nagor and Ajodín on the Sutluj to Lahaur, which he quitted for Ajmír and Agra in the second month of 979. So that he might well have been at Fírozpúr on the date given.

It is easy to conceive how the canals fell into decay. In the decline of the imperial power, when the irrigated country was a seat of constant war, and the lands along the banks were alienated among various chiefs, any system of conservancy became impossible, and the works must rapidly have been ruined. The Hansi canal was the first to suffer, as early as 1707, we are told(*w*), the Sikhs taking advantage of the weakness of government during the contentions of Aurang Zeb's sons for the empire, converted the whole of the canal waters to their own use. And this at once reducing the country around Hissár to its original sterility, forced almost the whole of the inhabitants to seek a more favourable soil. A hundred years afterwards, in 1807 (as we are told by an officer on Survey in the Sikh States at that time), there was not a single inhabitant in the extensive city of Hissár(*x*). The Dehli canal, or Ali Mardán Khan's branch, continued to flow to a much later period. The officer just referred to learned, from aged zamindars, that the country had been deprived of the advantages of this canal since the accession of Alamgír II. in 1753. The same authority informed him that for purposes of canal police, and the ready repair of accidents, a Darogha was stationed at every three or four koss, with peons and beldárs under him. The water rent appears to have been regulated by the time that the outlets remained open. 1000 armed peons and 500 horse, as Mr. Seton was informed by the son of one of the last native superintendents(*y*) were maintained on the establishment. According to a proverbial expression current at Dehli, the net revenue from the canals was reckoned equal to the maintenance of 12,000 horse(*z*). *

As Colonel Colvin's paper on the history of the canals contains few dates, it may be worth while to add the following :—

(*w*) Letter dated May 1807, from Lieut. F. White, Surveyor to the Resident at Dehli. In the Office of the G. G. A. N. W. F.

(*x*) Ditto ditto.

(*y*) Letter from Mr. Seton to Govt. 11th September, 1807.

(*z*) Ditto ditto.

Chronology of the Western Jumna Canals.

A. D. 1351.—Fíroz Sháh brought a stream down the channel of the Chitang to Hansi and Hissár.

About 1468.—The waters of the above named channel ceased to flow further than the lands of Kythal.

A. D. 1568.—Akbar re-excavated the work of Fíroz and brought a supply from the Jumna and Sonb, by the present line, into the Chitang.

About 1626.—From the last named line, Ali Mardán Khán drew a canal to Dehli; first by way of Goháná, and afterwards, on that failing, by the present channel, passing near Paniput and Sonceput.

A. D. 1707.—The water ceased to reach Hariána.

„ 1740.—Ceased to flow at Safidún.

„ 1753 }
to } The Dehli branch ceased to flow.
„ 1760 }

„ 1817.—Capt. Blane appointed to restore the Dehli Canal.

„ 1820.—The water again entered Dehli.

„ 1823.—Restoration of Fíroz's, or the Hansi branch commenced.

„ 1825.—The water turned down.

Simla : November 1st, 1845.

P. S.—Capt. Abbott having, since the above was written, furnished me with a copy of the original Persian of the Sanad, it is enclosed. I have also since ascertained that the Ayin Akberi makes no mention of Akbar's having engaged in this work, which is singular.

*Notes, chiefly Geological, on the Western Coast of South India.**By Capt. NEWBOLD.*

I have not yet had an opportunity of examining the Western Coast from Cape Comorin to Beypoor, but by specimens received thence, and by information from General Cullen, laterite is doubtless the prevalent surface rock. General Cullen writes me that he has found a bed of lignite, in the laterite at Karkully, about fifteen miles south of Quilon, in a stratum of dark shales and clays. At Cape Comorin itself are beds of sandstone, and shell limestone, of which a good account is a desideratum.

Calicut.—At Calicut, the ancient capital of the Zamorin, (a corruption by the Portuguese for Raja Samudri) and the landing place of Albuquerque on the shores of India, laterite is also the prevalent rock.

The modern town exhibits few traces of this once famous city. Of the old fort scarcely a vestige remains beyond a ruined doorway, the traces of a fosse and counterscarp, some mounds marking the southern gateway, and the site of a few bastions.

Another fort, it is said, was built by Tippoo; but this too has been destroyed; and the present shoal of Calicut was pointed out to me by an old native as the site of a still older fort overwhelmed by the sea. Tradition states that the place where the Syrians landed near Quilon is also engulfed.*

The modern town is a large assemblage of garden houses, on a low sandy sea coast, under a grove of cocoanut and jack trees, and extending a considerable distance inland. A broad street runs down to the sea through the midst of this scattered town. The houses flanking it are usually contiguous, built of laterite, or brick and chunam, whitewashed.

The streets, that branch off from it to the right and left, are narrow, winding, and dirty, like those in the oldest parts of Lisbon. Here dwell the Moplay and other native merchants.

On the beach facing the sea runs a row of warehouses for timber, coir rope, split bamboos and other marine stores. The rope is manufactured on the spot.

* Madras Journal, No. 30, p. 146.

In the roadstead I observed native craft only. The boats used for communication with the shore, though composed of planks sewn together with coir, like the Massoolah boats at Madras, differ from them in being lighter, lower, and flat-bottomed, and are extremely pointed at the stem and stern. As the surf here is much less powerful than on the Coromandel Coast, a boat of a heavier description is not required.

The laterite continues, by Mahé and Tellicherry, to Cannanore, a little north of which it overlies some carbonaceous looking clay, and slate clay. Lateritic iron ore is found at Augadipur, Satimangalum, and many other places throughout Malabar; iron sand (magnetic) in most of the ghaut streams. Gold dust is also found in similar localities, especially in Wynaad and Ernaad, and other places elsewhere specified.

Payengady.—Payengady is about sixteen miles NNW. from Cannanore, and stands on the sea coast near a back water. A *coup d'œil* from the rising ground near the village presents a low flat, stretching between an inland ridge and the sea; and which has all the appearance of having been covered by the sea up to the base of the laterite cliffs. This flat is for the most part covered by marine sand, and thinly scattered with houses shaded by cocoanuts. A few marine shells were found at the base of the cliffs about a mile inland. Whether drifted by the wind or conveyed here by the sea under former conditions is uncertain.

The hills in the back ground stretch out like promontories, terminating abruptly at the inland edge of the flat.

The laterite overlies granitic and hypogene rocks. Between Covai and Cautcutcherry the Nelisir back water is crossed from Malabar to Circar Canara, or from Malayala to Tuluva, where Canarese is spoken and Malayalum ceases.

Cassergode.—The laterite continues the surface rock by Hosdroog, Bekul, and Chundergherry, to Cassergode. It rests as usual on granitic and hypogene rocks; which, near Bekul, are veined with quartz, and imbed garnets and amethystine quartz, fragments of which are numerous in the sand on the shore. There is also a black magnetic iron sand derived probably from the dark and beautifully crystalline hornblende schists. The strike of strata is westerly: the dip is confused, often vertical. The fort stands on laterite, capping basaltic greenstone.

The soil on the rice flats is a rich mould, deposited in part by the rivers in their passage to the sea from the ghauts. These bring down a considerable portion of the decayed vegetable matter of the dense jungles on their banks, mingled with the detritus of granitic hypogene rocks, and of the laterite. When lateritic detritus is in excess, vegetable matter is added by the natives as a manure. Inland, to the NE., the granitic masses of Jumalabad, Murbiddry, and Carculla rise above the surface, the former to a great height, almost inaccessible from the steepness of its sides.

Mangalore.—Laterite is still the surface rock as before observed. The numerous back waters or marine lagoons, which lie along the Malabar Coast, are formed at the mouths of rivers by sand bars thrown up by the antagonizing forces of the mountain torrents and the tidal wave. These sand bars are liable to be broken through, and alter their position by the force of extraordinary storms. Their beds afford instructive examples of the manner in which both fresh water and marine exuviae may be mingled and embedded in the same stratum. Numerous sand dunes also occur at the embouchures of rivers near back waters. These tranquil marine lagoons greatly facilitate native commerce along the coast.

Kundapur.—About a mile inland from the present embouchure of the Kundapur river, stands the town of Barcelore, the supposed Barace of Ptolemy: a place of great traffic in former times with Arabia and Egypt, and which is supposed to have stood upon the old embouchure of the river before the land gained upon the sea.

Vicramaditya, or his dynasty, is said to have ruled 2,000 years at Barcoor (Barcelore), and, after him Salivahana, to whom succeeded Buddha Penta Raja and the Bijanugger dynasty. A human sacrifice, offered up to increase its commerce, is alluded to in the Mackenzie MSS.

I observed near the old Pagoda at Kundapur, an inscription on stone, which opportunity did not permit me to copy. Barcelore is still a place of great native trade.

The present bar at the river's mouth does not admit vessels of more than fifty or sixty corges, which find secure anchorage under the lee of the north bank. Its entrance was protected by a battery built by Hyder, and an old fort now in ruins.

Honawer (Onore) and Sedashegur.—The geology of Honawer, or Onore, has already been touched upon. Suffice it to say, that laterite is the prevalent rock.

Sedashegur is about $168\frac{1}{2}$ miles, northerly from Mangalore, about three miles south of the southern frontier of the Portuguese territory of Goa. The western ghauts here advance boldly to the ocean and afford some points of view, which truly approach the magnificent. The back ground of the picture is filled with the wild mountain scenery of the ghauts, from whose forests issues the Kāli, or Black River, to the Indian Sea in the fore ground, expanding into a broad and beautiful lake near its embouchure, and stretching between two bold promontories, the northernmost of which is crowned by the picturesque ruins of the old fort which once guarded the entrance.

Across the mouth of the river runs a sand bar, over which at high water there is a draught of about two and three-quarter fathoms. Vessels of about forty corges find a snug anchorage within the bar; and boats of from twenty to twenty-five corges pass up the river eighteen miles to Mallapur, where there is a salt depôt. They carry up salt-fish and salt from Gokurn, and bring back rice and firewood, chiefly for the Goa and Bombay markets. Mr. Oakes attempted to make this a depôt for the cotton shipped from the interior to Bombay, &c., as being a much more convenient harbour, and nearer Bombay than that of Kompta. But the project failed in consequence of the opposition of the Gujerati merchants of Kompta, who were averse to quitting their Mamool village.

The formation of the ghauts near Sedashegur to the south, is chiefly granite with gneiss and hornblende schist, penetrated often by large dykes of basaltic greenstone, which at their base are covered partially by laterite. Their summits, I had no opportunity of examining.

A little south of Sedashegur, between Ancola and Chendaya, the beach of a small and pretty indentation of the sea is strewed with nodules of a stiff black clay, resembling in colour that of the lignite deposit at Beypoor: the situs cannot be very far distant. Iron is said to be smelted at Gopchatta.

The soil is usually a sandy loam. The staple articles of cultivation are rice, cocoanuts, sugarcane and raggi. The latter and hill-rice

occupy the dry lands and cleared sides of the mountains (like the wheat on the high *sierras* of Spain,) while the irrigated flats of the valleys smile with abundant crops of paddy and sugar-cane. Yearly the mountains blaze with the fires of the clearers, who are obliged, like the Malays, to shift from one spot to another as the soil of the clearing becomes exhausted.

The fort, it is said, was built by the Soday Rajas of Sircy, from whom the Portuguese wrested it. It next fell with Ancola and Gokurn into the hands of Hyder, and eventually into those of the English.

I observed about thirty-two guns, apparently of Portuguese manufacture, lying about.

At present (1840), Sedashegur (Siveswargur) contains about 600 houses, inhabited principally by Concanni Mahrattas engaged in cultivation, by Christians from Goa, Comarapaiks, and Mussulmans. Three miles north commences the *Konkana* region, where that of *Tuluva* terminates. Near the junction, the two languages, viz. Canarese and Mahratta, are mixed. The old inscriptions on stone at Gokurn and other places south of this, are mostly in the old Canarese language and character. Some of the earlier ones belonging to the ninth century of the Salivahana era, show that this part of the country was under the sway of the kings of the Cadumba dynasty of Bunwassi ; and those of the fifteenth century show the extension of the Bijanugger empire to the western coast.

Gokurn, about thirty miles south of Sedashegur, is one of the sacred places of Hindu pilgrimage, ranking with Tripati, Ramisseram, Juggernath, Sondur and Sri Sailam or Perwut.

It is the reputed scene of Parasuram's exploits, who raised the whole of the western coast from the ocean's bed to the base of the ghauts, and divided the new born territory among the Brahmans. Many subdivisions of this tract, and other changes, are known to have taken place at various historical epochs ; for instance, the tract from Honawer to Gokurn was called *Ilaga* ; but it is probable the three provinces as they now exist, viz. the Concan, (or *Konkana*) ; Canara (or *Tuluva*) ; Malabar or Travancore (of *Kerala*), distinguished by the Mahratta, Canarese, and Malayalum languages, were the original geographical and political divisions of the western coast of India. After descending the ghauts,

with the physical aspect of the country, the vegetable, animal, and social systems undergo a striking change. A new language strikes the ear, and the eye is astonished at the sight of the wives and daughters of the upper classes, walking abroad naked from the waist upwards. The houses of towns and villages, instead of being huddled together as in the Carnatic, are widely separated in gardens or *desams* like the Malay Campong, and the generality of inhabitants struck me as resembling Malays in their habits and customs. The singular right of inheritance enjoyed by the sister's son is precisely similar to that of the Menangcabowe Malays. Sheep are no longer seen, and instead of the fine oxen of Coimbatore, one sees a miserable breed of black cattle, hardly larger than donkies. The peculiar manners and customs of the various castes are too various for detail here.

Goa and Malwan.—Laterite covering granite and the hypogene rocks, continues from Sedashegur to Goa, and probably from Goa by Vingorla to the north of Malwan.

At Malwan gneiss occurs, and a bright magnetic iron ore, resembling that of Salem, disseminated in grains and nests, or in alternate layers with quartz. The rocks off the coast, washed by the breakers from their white colour and shape have the appearance of a boat under sail.

Mr. Fraser describes the overlying trap as coming down to Malwan, but I did not meet with it on the coast till I reached the village of Sarki.

Sarki.—I had no opportunity of examining the rocks at Ratnagherry, which lies between Malwan and Sarki: but the contour of the ghauts here is apparently trappean. At Sarki the trap hills descend towards the coast in long, flat-topped, wall-like promontories, becoming higher and wilder around Severndroog.

Bancoot or Fort Victoria.—The trap rises from the sea beach in a high steep rock, on the western extremity of which stands the fort commanding the entrance of the river. The citadel and flag-staff are conspicuous objects at sea. The town extends, at the base of the rock, towards the sea, and is well studded by cocoanut trees.

The rocks in the little bay of Shiwurdin are dark basalt and amygdaloid, imbedding zeolites, geodes and veins of chalcedony and quartz. At the water's edge the basalt is much honeycombed.

The outline of the ghauts in the back ground is bold and picturesque. A little to the north, the mountains of overlying trap attain their maximum elevation, which never approaches that of the peaks of granite and hypogene schist farther south, although they sometimes attain 4,500 feet of altitude above the sea's level.

They usually rise from the low maritime tracts of the Concan in bold escarpments, broken by steps or terraces, to the table land of the Deccan.

The Concan.—The foregoing observations from Goa were made as I was sailing up the coast from Sedashegur in a native pattamar, with a foul wind to Bombay. After leaving Fort Victoria the wind became fair, and consequently I had no longer any opportunity of going ashore and examining the Concan between Bombay and Bannoot. The ghauts in this region, we know, are of trap from the observations of Colonel Sykes. Their long horizontal outline, varied occasionally by truncated conoidal peaks, are characters in which their nature is plainly written.

The rock composing the Concan is chiefly trap. My lamented friend Malcolmson found beds of sandstone at Atchera, dipping at a considerable angle to the NW.

As the existence of fossiliferous deposits is by no means improbable on this low maritime tract, through the rocky fissures of which many hot springs find vent, and which have not yet been fully examined, I should strongly recommend its minute geological exploration.

Bombay.—The geology of this and the neighbouring beautiful islets of Elephanta, Salsette, &c. has been so well and minutely described by Dr. Thomson, that I shall content myself with observing that they are all of the overlying trap formation, and the rocks composing them embrace every variety from dark basalt to light coloured amygdaloids and wackes, from compact to crystalline and porphyritic.

I must not however omit to mention a curious variety termed *white basalt*, of which the base of Sir John Malcolm's statue at Bombay, if I recollect right, is composed. Externally it often resembles a soft felspathic granular sandstone, white, with a slight shade of yellow, but it is clearly seen passing into a true, rough, crystalline trachyte.

It is dug at the quarries of Salsette, and composes a large part of the island; some of the granular varieties are extremely hard, and

take a fine polish. Crystals of glassy felspar occur imbedded when the rock passes into trachyte porphyry ; but I have never seen it with scales of mica, assimilating granite, like the trachytes of Smyrna and Mitylene. In some places it has the appearance of a stratified sandstone, and in others there can be no doubt of its volcanic origin. In one place it is felspathic ; in the other imbedding rock crystal, and *globules* of quartz.

As this curious rock is without parallel in India, a detailed description of its relations with the contiguous trap, and a series of specimens exhibiting the different mineral alterations the rock undergoes in various parts of its mass from the line of contact to its most distant point from the trap, would be highly interesting and instructive. It is probable that the molten mass of trap and trachyte may have here invaded the sandy bed of a lake or sea, and thus become blended.

The amygdaloid of Bombay, among other beautiful specimens of the zeolite family, contains that rather rare mineral (in Europe). apophyllite. Chalcedony in most of its varieties, and beautiful agates, are common.

The temperature of sea water in the harbour of Bombay in April was 87° Fahr. a foot below the surface. The temperature of air in the shade was 85° the time of observation 3 P. M.

The temperature of water in a well at Bombay, 20 feet deep, was 82° ; (which approaches the mean temperature of the place) : the temperature of air in the shade was 86° ; time, noon ; month, April. The temperature of the cave of Elephanta—same month—time, noon—was 85° ; the temperature of the water of a well in Elephanta was 75° . 5'—temperature of air in the shade at the moment was 85° ; time of observation, noon

*The Coins of Arakan :—The Historical Coins, by Capt. A. P. PHAYRE,
Principal Asst. Commr. Arakan.*

The art of coining appears to have been introduced among the Arakanese only at a very late period. Their oldest legendary coins were suggested to them by the coined money of the Mahumudan sovereigns of Bengal. I say their *legendary* coins, since it is probable that a medal similar to that described, and so happily explained by Lieut. Latter (in the Jour. As. Soc. Vol. XIII. p. 571) was struck in Arakan at a period much earlier than were the coins now to be noticed. It is indeed certain, that to coin money is a but lately known art among the Burmese race. The term in their language for coin,—*ding-ga*,—seems not to be a native word, but adopted from the Hindoos. *tu-ka*. In the dominions of Ava, coined money is still unknown; payments are made by silver ingots weighed out as required.

The Arakanese sovereigns no doubt wished to follow the kingly practice existing in Bengal, of coins being struck in the name of the reigning monarch. We learn from their annals that about the middle of the fifteenth century of the Christian era, they conquered Bengal as far as Chittagong, of which they kept possession for about a century. It was then, that they first struck legendary coins. On the obverse of the earliest of these, we find the date and the king's names written in the Burmese character, together with barbarous attempts at Mahumudan names and titles; these they assumed as being successors of Mussulman kings, or as being anxious to imitate the prevailing fashion of India. Indeed, there is some reason to believe that *Ba-tsau-phyú*, a Buddhist king like the rest, who ascended the throne A. D. 1459, obtained among his own subjects the epithet *kalamashú*, (the son of the *Kalama*) from having issued a coin with the Mahumudan *kulima* inscribed upon it. The reverse of most of the earlier coins, contains unintelligible Persian and Nagri inscriptions. The Arakanese kings were frequently known to their subjects by names and titles different from those which appear on their coins. This circumstance will explain a discrepancy observable between the coin-names of kings given here, and the sovereigns of the same period found in the list of Arakanese kings, published in the Society's Jour. Vol. XIII. page 50. The coin-date generally coincides with the year of the king's

accession to the throne ; but in some instances it does not : more than one coinage having occasionally been issued in the same reign.

Old coins are frequently discovered buried in the ground in various parts of Arakan. Several valuable ones thus found have been kindly sent me by Major David Williams, Principal Assistant Commissioner (then) of Ramree. Many have also been met with, hung as charms or ornaments round children's necks, which have been retained in families for several generations. At present I have the means of describing only a few of those I once possessed ; the greater portion having been lost when the Society's cabinet was robbed some months ago. All those now described are of silver, for though a few of mixed metal are to be met with, their legends do not differ from these.

The oldest Arakanese coin I now possess is that marked No. 1. The obverse is as follows :—

၉၆၃ ဆင်ဖြူ သခင် နရပိဗ္ဗတိဆောလိယျာ

TRANSLATION.

963. *Lord of the White Elephant, Nará-dib-ba-di Tshau-lim Shyá.*

Here 963 in the Arakanese era is equivalent to A. D. 1601. *Nará-dib-ba-di* is a Pali title signifying I believe “ Ruler of men ;” while *Tshaulim Shyá*, is nothing more than a barbarous attempt at the Mahumudan title *Zalim Shah* ! The reverse of this coin bears some unintelligible compound of Persian and Nagri letters. The above king stands No. 17 in the list of Arakanese sovereigns of the *Myouk-ú* dynasty, in the Jour. As. Soc. 1844, p. 50, under the name of *Meng-Rá-dzá-gyi*. I long considered the date of this coin to be 863, the first figure on that I possess being imperfect, and the date 863 corresponding with the accession of a king styled *Meng Rá-dzá* in the above mentioned list No. 8. However, on seeing a duplicate of this coin in the possession of Lieutenant Fytche, I was struck with the resemblance of the first figure to a 9 and looking into the *Rá-dzá-weng* or Arakanese history, I found *Meng-Rá-dzá-gyi* mentioned with the Pali and Mahumudan titles (the latter differing slightly in the spelling) as inscribed on the coin. The coin must have been struck in the eighth year of his reign.

No. 2. The next coin is that of the son and successor of the preceding king; the obverse bears the following date and inscription:—

၉၇၄ ဆင်ဖြူ သခင် ဝရေဗ္ဗရာဇာ ဥဿျာဏ်သျှာ

TRANSLATION.

974. *Lord of the White Elephant, Wa-ra-dham-ma Rá-dzá Oo-shyoung-shya.*

This date is equivalent to A. D. 1612. *Wa-ra-dham-ma Rá-dzá* is a Pali title said to signify “Excellent-law-observing king;” while in *Oo-shyoung-shya* we have another instance of the barbarous adoption of a Mahumudan name, it appearing to stand for Hoosein Shah! This king was commonly known to his subjects by the name *Meng khamoung*.* The reverse of this coin bears like the preceding one an illegible inscription in Persian and Nagree.

No. 3. The obverse of this coin has the following date and inscription:—

၉၈၄ ဆင်ဖြူ သခင် ဆင်နီ သခင် သိရိသုဓမ္မရာဇာ

TRANSLATION.

984. *Lord of the White Elephant, Lord of the Red Elephant, Thi-ri-thu-dham-ma Rá-dzá.*

This date is equivalent to A. D. 1622. There is no Mahumudan name on this coin. The Pali title is translated “Excellent righteous king.” On the reverse is an illegible Persian and Nagree inscription.

No. 4. This coin, and all those posterior to it, have the same inscription on the obverse and reverse. On this one the date and inscription are as follows:—

၁၀၀၀ ဆင်ဖြူ သခင် ဆင်နီ သခင် နရပတိကြီး

TRANSLATION.

1000. *Lord of the White Elephant, Lord of the Red Elephant, Na-ra-bu-di-gyi.*

This date answers to A. D. 1638, the very year in which the History of Bengal informs us that the “Mugh Chief who held Chittagong on the

* *Khamoung*, in Burmese writings signifies, the “canopy of state”—being part of the regalia of their Kings. It is probable that this title *Meng Khamoung*—was a translation of some Mahumudan epithet, which this King took to himself. It may be rendered, “The Canopy of Kings.”—T. L.

part of the Raja of Arakan," delivered it up to the Mogul Viceroy, Islam Khan. This circumstance accounts for the Persian inscription being wanting on this coin. This chief is called in the Bengalee History, Makut Ray, a corruption of his title *Meng-ré*, i. e. "War Chief."

No. 5. The date and inscription of this coin are as follows :—

၁၀၀၇ ဆင်နီ သခင် ဆင်ဖြူ သခင် သထိုက် မင်းတရား

TRANSLATION.

1007. *Lord of the Red Elephant, Lord of the White Elephant Tha-do the monarch.**

This king does not appear to have been known by any other name than that here mentioned. The date is equivalent to A. D. 1645.

No. 6. Date and inscription are thus :—

၁၀၁၄ ရွှေနီ သခင် စန္ဒသူဓမ္မရာဇာ

TRANSLATION.

1014. *Lord of the golden Palace, Tsan-da Thoo-dham-ma Rá-dzá.*

The date answers to A. D. 1652. The style of the king is here altered ; he is no longer Lord of the White Elephant, but of the "golden Palace." This style was retained until the fall of the kingdom in A. D. 1784. The Pali title signifies "The moon-like righteous king."

No. 7. The obverse and reverse run thus :—

၁၀၄၇ ရွှေနီ သခင် ဝရဓမ္မရာဇာ

TRANSLATION.

1047. *Lord of the golden Palace, Wa-ra-dham-ma Rá-dzá.*

This date is equivalent to A. D. 1685. In the list of Arakanese kings before referred to, the date of this monarch's accession is erroneously given as 1054.

No. 8. The date and inscription are as follows :—

၁၀၇၂ ရွှေနီ သခင် စန္ဒဝိဇယာ

TRANSLATION.

1072. *Lord of the golden Palace, Tsan-da Wi-dza-yá.*

This date answers to A. D. 1710.

* The words *meng tará* might perhaps be interpreted "Lord of justice." Whilst *dhamma* generally refers in the Burmese Language to the "sacred law," *tará* alludes to the "law of the land."—T. L.

No. 9. Date and inscription.

၁၀၉၃ ရွှေနံ သခင် ဝန္တသုရိယရာဇာ

TRANSLATION.

1093. *Lord of the golden Palace, Tsan-da Thu-ri-ya Rá-dzá.*

This date answers to A. D. 1731.

No. 10. Date and inscription.

၁၀၉၉ ရွှေနံ သခင် မဒရစ်ရာဇာ

TRANSLATION.

1099. *Lord of the golden Palace, Ma-da-rit Rá-dzá.*

No. 11. Date and inscription.

၁၁၀၄ ရွှေနံ သခင် နရအာယရာဇာ

TRANSLATION.

1104. *Lord of the golden Palace, Na-ra-a-pa-ya Rd-dzá.*

No. 12. Date and inscription.

၁၁၂၃ ရွှေနံ သခင် ဝန္တပရမရာဇာ

TRANSLATION.

1123. *Lord of the golden Palace, Tsan-da Pa-ra-ma Rá-dzá.*

No. 13. Date and inscription.

၁၁၂၆ ရွှေနံ သခင် အာယမဟာရာဇာ

TRANSLATION.

1126. *Lord of the golden Palace, A-pa-ya Ma-há Rá-dzá.*

No. 14. Date and inscription.

၁၁၃၅ ရွှေနံ သခင် ဝန္တသုမနရာဇာ

TRANSLATION.

1135. *Lord of the golden Palace, Tsan-da Thu-ma-na Rá-dzá.*

For this coin I am indebted to the kindness of Lieutenant A. Fytche, Junior Assistant to the Commissioner of Arakan.

No. 15. Date and inscription.

၁၁၃၆ ဣန္ဒိ သခင် စန္ဒသဒိသရာဇာ

TRANSLATION.

1139. *Lord of the golden Palace, Tsan-da-tha-di-tha Rá-dzá.*

No. 16. Date and inscription.

၁၁၄၀ ဣပြည် သခင် ဓမ္မရာဇ်ရာဇာ

TRANSLATION.

1140. *Lord of the golden Land, Dham-ma-rit Rá-dzá.*

No. 17. Date and inscription.

၁၁၄၄ ဣန္ဒိ သခင် မဟာသမတရာဇာ

TRANSLATION.

1144. *Lord of the golden Palace, Ma-há Tha-ma-da Rá-dzá.*

This was the last native sovereign of Arakan. In the second year of his reign being 1146 or A. D. 1784, the Burmese conquered the country. They immediately issued the next coin.

No. 18. Date and inscription.

၁၁၄၆ အမရပူရ ဆင်ဖြူများရှင်နိုင်ငံ

TRANSLATION.

1146. *Conquered country of the Amarapura, many-white-Elephant-Lord.*

This coin was also placed at my disposal by Lieutenant A. Fytche. During the forty years the Burmese held Arakan, they did not, I believe, issue a coin with any other date stamp upon it.

There is another coin which has been lent to me by Lieutenant Latter, and which should have come immediately after No. 9. I now mark it.

No. 19. Date and inscription.

၁၀၉၇ ဣန္ဒိ သခင် နရပဝရရာဇာ

TRANSLATION.

1097. *Lord of the golden Palace, Na-ra-pa-wa-ra Rá-dzá.*

The date is equivalent to A. D. 1735.

The Coins of Arakan—The Symbolical Coins. By Lieut. THOS. LATTER.

The coins of which the accompanying facsimiles are given, are interesting, in that they represent whatever ideas they were intended to convey, by means of pure symbolism alone; and afford no clue by which to connect them with any particular prince. They are all, I believe, of a type peculiar to Trans-Gangetic India. No. 1, was found in the city of Haleng, in the Empire of Burmah, and has been already described at some length in a former number of the Society's Journal. It is placed here for the purpose of shewing how the same type of symbol runs through the whole. The remainder are peculiar to Arakan, the last being somewhat common. Knowing these coins to be Buddhistical from their being found only in localities—where no other than that faith has obtained, and having, as I have already said, no clue to justify our connecting them with any particular monarch; it is only by viewing them as representing by means of symbols certain dogmas, or tenets, (whether religious, or philosophical) of the Buddhist faith, that we can hope in any way to resolve their meaning.

In the description of No. 1, I speculated that the side (b) might be intended to convey a symbolical representation of the cosmology of Buddhism. The twenty-eight circular figures in the outer ring representing the twenty-eight Buddhs characteristic of a *Mahāgabbha*, or grand period of nature; and the five drop-shaped figures within the circle representing a *Buddhagabbha*, or lesser period of nature, the present period being characterized by the presence of five Buddhs; which are therefore made to preside over a curious emblem composed of certain triangles representing this world in particular. Although I could not at the time account for the reason why this singular combination should be able to convey such an idea; yet in a subsequent paper, (on the Buddhism of the emblems of architecture), I ventured to suppose (taking the triangles with their points downwards to represent "water;" and those with their apices upwards to typify "fire;" that their being made to meet in a circle, (the universe) with a point in it, (this earth) meant to convey the belief in the reiterated destruction of the world by fire and water, whence its Pali name *lauka*, from *lau*, "to be again and again" renovated and destroyed. It is singular that in the two coins, Nos. 2 and 3, my interpretation is indirectly corroborated, for in them

this emblem of "renovation and destruction," is conformably represented by the Bull *Nandi*, the peculiar cognizance of Shiva, the God of "destruction and renovation."

The two last coins are Shivite, but probably appertain to a time when the emblems of the worship of Shiva, and those of Buddhism had something in common. Struck perhaps by this similarity as well as by their novelty, they seem to have been adopted by some of the Princes of Arakan. The fact of the characters on them being Pali does not in any way militate against this supposition, as the Burman Alphabet is but a modification of the Pali, and the similarity of the two increases in proportion to the earliness of the date. We see on these coins the Buddhist triglyph represented by the trident of Shiva. On each side is a scroll; and beneath are certain round dots. These dots are curious, for they here occupy the same position in reference to the triglyph of Shiva, that the guttæ do to the triglyph of architecture. In three coins in my own possession, evidently of two different dies, their number is "five." In another from the collection of Capt. Phayre, figured No. 3, their number is "nine;" this last, however, is a peculiarly expressive and powerful number in Buddhism. The legend over the Bull varies in three coins, they are given separately, (*a. b. c.* No. 5.). (*c*) presents the characteristics of the old Pali alphabet, with the exception of the first letter; I read it "*Shrī Vrieghau*, the last member of the symbol of the last vowel being effaced; so that it appears to the eye *Vrieghé*. The other two may be determined by those better versed in the old Nagri character. (*b*) is of a more ancient type than (*a*); which last is of the same class as the characters composing the inscription on the temple of Shiva in the village of Harshi, described in the Society's Journal, No. 43, July, 1835.

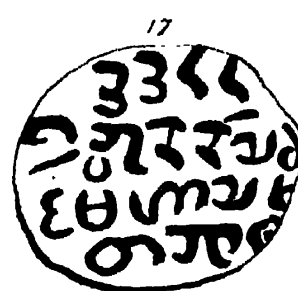
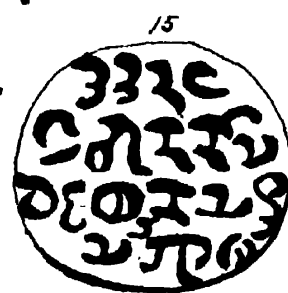
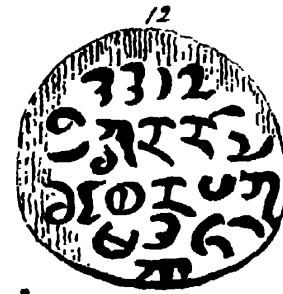
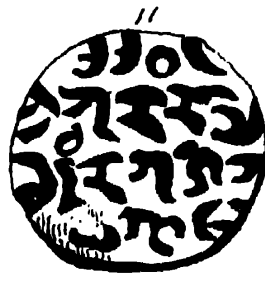
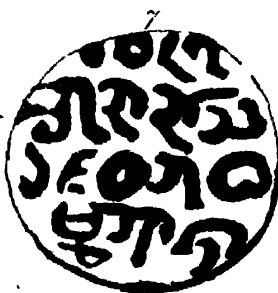
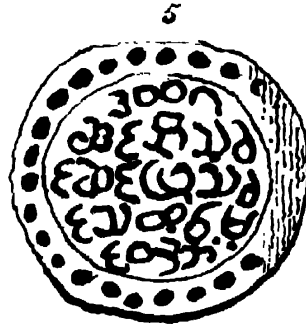
The popular tradition connected with these coins is the following: There was a king who set off to China to find the skull which he owned in a former state of existence when he was in the body of a dog; his astrologers having told him that this skull being wedged into the cleft of a tree was the reason why he was troubled with such incurable headaches, and that on removing it he would be cured.* On his departure he left with his wife a ring, and told her that in case he should not come back in seven years, she was to raise to the throne, and marry

that one of her subjects whom it would fit. On his way back the daughter of the Ocean king who was in love with him, begged her father to raise a storm to drown his fleet, and thus procure her lover. This being done, the prime minister who escaped informed the queen of the death of her husband; she immediately gave out throughout her kingdom that he should be her husband whom this ring would fit. Though numbers tried, it was not till an herdsman from the hills with his brother and nephew came down, that it was found to fit any one. It fitted them all three, the queen married the eldest brother, who thus became king, and he, in commemoration of his origin, put an ox upon his coins, as also the goad (the trident), the implement of his craft.

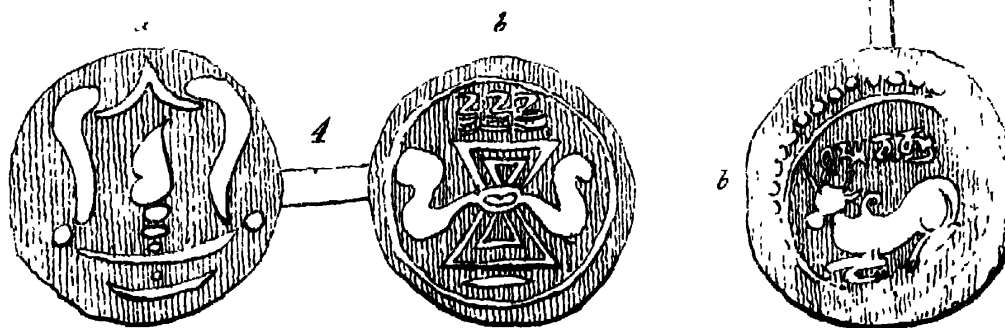
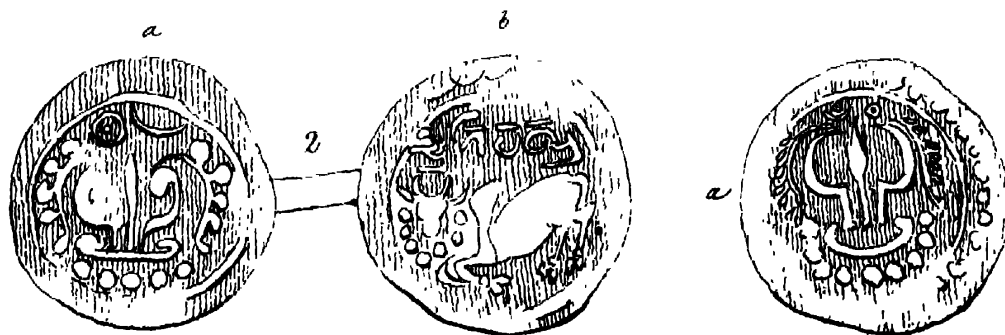
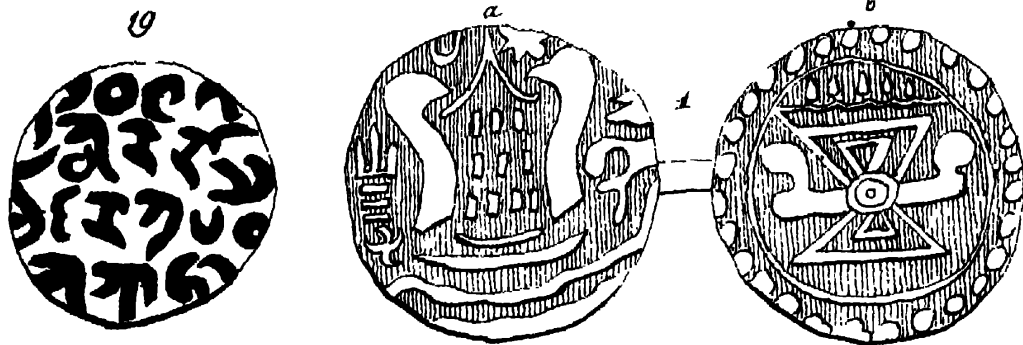
The coin No. 4, is much more modern in appearance than any of the others. It would be impossible to determine its age, its appearance would not give it more than 100 years. It is evidently the handywork of an artist who has concocted together a quantity of symbols that most struck his fancy from coins of a more ancient date. On the side (*a*) we see the parasol roof; being a part of the *tsédya* emblems. On each side are figures appearing to guard it. Below is that flame-shaped symbol, mistaken by Marsden, if I remember right, for the conch of Vishnu. On the obverse (*b*) is the symbol of combined triangles, over which are three "Z" shaped figures.

No. 6. The coin No. 6, though not belonging to the country, is represented here, having been found on the sea shore of the Island of Ramree with several others. It is of gold, and thin. The central portion represents an animal like a pig, with the representation of the Bo-tree above, and a monographic character 8 beneath. Around are certain characters which an intelligent Buddhist priest declares to be old Cingalese, and to compose the words, "*Pawaraganran thoeradza*," commencing from the letter marked (*a*). The first letter appears to have been mistaken by him; the first half composing it, being indistinct, appears to have escaped his attention. The name he gives is that of one of the old kings of Ceylon.

Historical Coins of Arakan.



Symbolical Coins of Arakan.



ਅਸਤੁ
a

ਖਸਤੁ
b

ਗੁਰੁ
c



*Proceedings of the Anniversary Meeting held at the Society's Rooms,
on the 4TH MARCH, for the 7th January, 1846.*

The Rev. Dr. Hæberlin, in the chair.

The following gentlemen, proposed at the last meeting, were ballotted for and declared duly elected :

Lieut. T. C. Blagrove, 26th N. I. (Scinde).

Lieut. C. C. Burton, 26th N. I. (Scinde).

The usual communications were ordered to be made to them.

The following new member was proposed :

J. T. Shave, Esq., proposed by S. G. T. Heatly, Esq., seconded by the Secretary.

The following gentlemen were elected as the Office-bearers of the Society for the ensuing year :

Vice-Presidents.—The Lord Bishop of Calcutta ; the Hon'ble Sir J. P. Grant ; the Hon'ble Sir H. W. Seton ; Lieut.-Colonel W. N. Forbes, and H. Torrens, Esq.

Secretary.—H. Torrens, Esq.

Librarian and Assistant-Secretary.—Babu Kissory Chand Mittra.

Committee of Papers.—The Rev. Dr. J. Hæberlin, W. P. Grant, Esq., C. Hufnagle, Esq., G. A. Bushby, Esq., W. Tayler, Esq., Babu Prosnocomar Tagore, S. G. T. Heatly, Esq., W. B. O'Shaughnessy, Esq., M. D., Lieut. A. Broome, B. H. A.

The proceedings for February, having been read, it was proposed by Colonel Forbes, that they be confirmed and published as respects the propositions put to the vote and carried in the latter portion of the proceedings, all else being recorded and not published.

Seconded by the Secretary.

The question was put to the vote and carried by a majority.

Read the following list of books, presented, purchased, and exchanged :

List of Books received for the Meeting of Wednesday, the 4th March, 1846.

PRESENTED.

1. Meteorological Register for January, 1846. From the Surveyor General's Office.
2. The Calcutta Christian Observer, for March, 1846.—By the Editors.
3. The Oriental Christian Spectator, for February, 1846. By the Editor.
4. London, Edinburgh and Dublin Philosophical Magazine, No. 179, for September, 1845.—By the Editor.
5. Zeitschrift für den Kunde des Morgenlandes herausgegeben Von Christian Lassen, Fünftes Bundes Zweites Heft, 1844.—By the Author.
6. Atlas of Anatomical Plates, Fasciculus I. containing the Bones.—By F. J. Mouat, M. D.
7. Astronomical Observations made at the Royal Observatory, Cape of Good-Hope, 1834, under the direction of F. Maclear, Esq. : F. R. S. R. A. S., &c. &c., Her Majesty's Astronomer, vol. 1st.—By the Royal Society.
8. Proceedings of the Zoological Society of London, part 12, 1844.—By the Society.
9. Tareek Eausafee, by Esuf Khan Hydrabadie.—By the Author.

PURCHASED.

10. Wilkinson's Manners and Customs of the Ancient Egyptians, 5 vols.
11. Plates to Wilkinson's Ancient Egyptians.
12. Journal des Savans for October, 1845.
13. Annals and Magazine of Natural History, vol. 16, No. 107, for Dec. 1845.
14. Gould's Australian Birds, part XX.
15. Saughita, 18 numbers.
16. Edinburgh Review, Nos. 161 and 162.

EXCHANGED.

17. Journal Asiatique, vol. 5, No. 24, June, 1845.
18. The Athenæum, No. 946 to 948, for December, 1845.

Read the report of the Committee of Papers upon the questions which have occupied its attention as regards the employment of a salaried Sub-Secretary; it appearing that the funds of the Society do not permit of the maintenance of this officer, the Committee recommended that, much as it regretted the necessity which the proposed arrangement included of depriving the Society of the services of Dr. Roer, it was obliged to suggest a re-arrangement of the Secretary's establishment, whereby an individual, in a position to devote the whole of his time to the duties of Librarian, and capable at the same time of acting as assistant to the Secretary might be engaged. The Committee, therefore,

suggested that funds not being available, the office of Sub-Secretary should cease to exist, and that arrangements should be adopted by the appointment, experimentally, of Baboo Kissory Chaud Mitter, as Librarian and Assistant-Secretary. It was resolved that letters should be addressed to Mr. Piddington and Dr. Roer accordingly, and that the native gentleman above-named should be appointed to the offices indicated on a salary of eighty Rupees a month, for six months, with an assistant at forty Rupees. The salary of Babu Kissory Chand Mitter to be increased to 100 Rupees at the end of that period, if the arrangement be found to prove satisfactory. The question was put to the vote and carried by a majority.

It was then proposed by Dr. Haerberlin, and carried by acclamation:—

That the Society offer to Dr. Roer, the expression of its regrets at losing the advantage of his services as Librarian, and apprise him that he has been elected an Associate Member of the Society.

It was proposed by Dr. Haerberlin, seconded by the Secretary, and carried by acclamation:—

That the thanks of the Society be voted to Mr. Piddington for the valuable and constant assistance which he has afforded to the Society and the zealous manner in which his services have been invariably devoted to it.

The accounts of the Society having been laid upon the table by the Secretary for the inspection of the members, it was resolved that C. K. Robison, Esq., Capt. Marshall, the Rev. J. Macqueen, and J. Ward, Esq., be requested to form a Committee of Audit.

For all presentations, the thanks of the Society were accorded.

एासयाटिक् सोसाइट् संस्कृत नागराक्षर ॥

महाभारतं आद्यन्त ४ खण्ड	...	...	४०
महाभारतीयान्तर्गतसूचीपत्रं आद्यन्त			
४ खण्ड	...	...	६
नैषध आद्यन्त सटीक् १ खण्ड	...	...	७
हरिवंश आद्यन्त १ खण्ड	...	...	५
राजतरङ्गिणी आद्यन्त १ खण्ड	...	...	५
सुश्रुत आद्यन्त २ खण्ड	...	...	८
सूची पुस्तकं १ खण्ड	...	...	१
लासनेन रचितं सर्व साधारण	...	...	४
गीतगोविन्द १ खण्ड	...	...	२॥
यज्ञदत्तवधः १ खण्ड	...	...	२२॥
शकुन्तला नाटक्	...	...	१०

فهرست کتابهای عربی و فارسی مطبوع که در خانه اشیا تک
سوسیتهی حسب تفصیل الذیل بقیمتهای مناسب برای فروخت
موجود اند

اسامي كتب	قیمت
فتاوی عالمگیری مرتب بشش جلد فی جلد	هشت روپیه
عنايه جلد ثاني وثالث ورابع فی جلد	هشت روپیه
شرائع الاسلام	هشت روپیه
انيس المشرحين	پنج روپیه
جوامع علم رياضي	چهار روپیه
اصطلاحات صوفیه	پنج روپیه
خزانة العلم	هشت روپیه
تاریخ نادری	هشت روپیه
فهرست كتب کالج فورت ولیم و اشیا تک سوسیتهی	یکروپیه

JOURNAL

OF THE

ASIATIC SOCIETY.



On the Coins of the Independent Muhammadan Sovereigns of Bengal.

By J. W. LAIDLAY, Esq, Co-Secretary Asiatic Society.

Some months ago, as most of the readers of this Journal are perhaps aware, the greater part of the collection of ancient coins belonging to the Asiatic Society was abstracted from the Museum, and along with these, a valuable gold medal, the gift of the present Emperor of Russia. About the time when this unfortunate event occurred, I was engaged in arranging a series of the coins of the independent Muhammadan sovereigns of Bengal, and had reason to believe, that with the assistance of the Society's cabinet, which contained many rare and unique specimens of that type, I should succeed in filling the gaps in my own collection, and render the series tolerably complete. As misfortunes, however, rarely happen singly, it occurred that just about the same time, my own little cabinet sustained a similar loss. At a moment of neglect,—for we have in general but our own negligence to blame for mishaps of this nature,—nearly the whole of my gold and silver coins, including many uniques, and almost all of the series now under consideration, a series which had employed many years and much labour to collect, were purloined from my cabinet, those of copper only being spared to me, as being of too little intrinsic value to be worth the labour of removal.

No. 173. No. 89, NEW SERIES.

2 x

The coins which record the names of the obscure Muhammadan dynasties of Bengal have, it must be confessed, nothing in common with the high interest attached to the relics of ancient India and Bactria, which bring us in contact with times and persons of classical renown ; or illustrate those dark but profoundly interesting periods in the world's history, upon which the light of tradition falls but dimly. Yet, even independently of their more important use in correcting or in confirming the narrative of the historian, they have an interest of their own in their very rarity, which is such, that it is far easier to procure the coins of Alexander or his successors, than those of the Sultans of Bengal, of whom indeed few other monuments, and scarcely even these, remain. Of Gour, or Laknauti, the once vast and magnificent seat of their government, the capital whose wealth and splendour claimed for it the title of the ' seat of paradise,' scarce a vestige is to be seen : over its entire site, once instinct with thronging multitudes, nature has resumed her quiet sway, and the last traces of the mighty city are fast disappearing under the peaceful labours of the husbandman.

It is with the view of preserving a few authentic memorials of a dynasty of kings, of whose history so little is known, that I venture to submit a series of such coins as escaped the disasters above alluded to, or were happily figured before them. Some of these are in less perfect preservation than is desirable ; but let us hope, that such collectors as may be in possession of better specimens, will be induced to supply impressions of them, by means of which, these defects may be remedied on some future occasion.

The first of the Muhammadan rulers of Bengal who attained any thing approaching to real independence was Iliyas Shah, who successfully resisted the arms of Feroz Shah, and concluded a treaty of peace with that Emperor at Akdala, A. H. 757. He caused the coin of his kingdom to be struck in his own name, the least equivocal sign of independent sovereignty, without experiencing that immediate interference on the part of the Emperor of Delhi which attended all similar manifestations of his predecessors. In this respect, as well as in the permanence of his dynasty, Iliyas Shah must be regarded as the first independent Sultan of Bengal ; for his predecessor Fakhar ud-din, who is generally considered so by native historians, had scarcely thrown off his allegiance to Delhi, when his unstable authority was subverted by Ali Mobarik, an

officer acknowledging the supremacy of the emperor, who put him to death and himself assumed the emblems of independence. His reign, however, if a short usurpation may be so designated, was soon terminated by Iliyas Shah, who assassinated Fakhar ud-din, and took possession of the kingdom, which he governed with vigour for sixteen years, and transmitted to his descendants. The coins Nos. 1 and 2 were struck by this prince; they bear no date, and their execution is sufficiently rude—

OBVERSE.

السلطان العادل شمس الدنيا والدين ابوالمظفر الياس شاه
السلطان

REVERSE.

سكندر الثاني يمين الخلافة امير المومنين

He* died in A. H. 760, and was succeeded by his son Sekandar Shah.

This prince reigned, according to Ferishte, for nine years and some months, maintaining by the prudent adoption of his father's policy, the independence and integrity of his kingdom, when the utmost efforts of Feroz Shah were once more put forth to reduce him to a state of vassalage. No. 3, is a coin of Sekandar. It is in good preservation, and was procured at Santipore, near Culna. It records the titles and paternity of this prince, but no date—

OBVERSE.

الواثق بتايد الرحمن ابوالمجاهد سكندر شاه ابن الياس شاه
السلطان

REVERSE.

يمين الخلافة الله ناصر امير المومنين عون الاسلام والمسلمين
خلد الله ملكه

The inscription on the margin is not legible. Sekandar Shah died, or according to some, was killed in an engagement with his son and successor Gheias ud-din, in A. H. 769.

Nos. 4 and 5, are coins of the last named Sultan. As usual with the coinage of that period, they bear no date—

* Before ascending the throne he was known as Haji Iliyas; he is said to have founded the town of Hajypore.

OBSERVE.

غياث الدنيا والدين ابولمظفر اعظم شاه ابن سكندر شاه ابن
الياس شاه السلطان

REVERSE.

ناصر امير المؤمنين عون الاسلام والمسلمين خلد ملكه

Ghcias ud-din seems to have been a gay and accomplished prince. He was in correspondence with the poet Hafiz, who addressed an ode to him. He died according to Ferishteh A. H. 775, having reigned six years and some months.

His son Seif ud-din succeeded on the throne with the pompous title of Sultan Assulatin. I have not been fortunate enough to procure any coins of this monarch, but copy that figured No. 6, from Marsden's '*Numismata Orientalia*'—

OBSERVE.

سيف الدنيا والدين ابولمجاهد * * * شاه ابن اعظم شاه
ابن سكندر شاه ابن الياس شاه السلطان

REVERSE.

ناصر امير المؤمنين عون الاسلام والمسلمين

Historians ascribe to him a reign of ten years. He died in A. H. 785, and was succeeded by his son Shams ud-din Sani, the last of a dynasty unusually long in those times. The author of the *Tabqât-i-Akbari*, Nizam ud-din Ahmed, ascribes a short but prosperous reign to this prince; but Ferishteh describes him as young and inexperienced; from which we may infer, that he was most probably assassinated by his successor, a powerful Hindu nobleman, named Raja Kanis, (Ganesa?) No coins have been found of Shams ud-din Sani, who died in 787.

As Raja Kanis never openly embraced the Muhammadan faith, it is most probable that he never issued the coin of the realm in his own name. To have omitted the usual symbols of Muhammadanism would have been a perilous experiment on the forbearance of the bigoted followers of the prophet, and to insert them would have compromised the Raja with the adherents of his own faith. Either alternative was, perhaps, avoided by the issue of no new currency during his reign,

which lasted seven years. He died in A. H. 794, and was succeeded by his son Junmul, or Cheitmal. This prince avoided the perplexities of his father's anomalous position by summoning the nobles on the death of Raja Kanis, and publicly professing his conversion to Islam, which he artfully insinuated had taken place in his early youth, but had remained unavowed in deference to his father. He assumed with the emblems of sovereignty, the title of Jellal ud-din Muhammad Shah. There are, I believe, many of his coins bearing dates, according to Marsden, from 819 to 823, although the commencement of his reign is fixed by historians in 795 and its termination in 812. The specimens Nos. 7, 8, and 9, are very much defaced, and bear no date. The first two are taken from impressions presented to me by the late James Prinsep. The inscription upon the obverse seems the same in all—

جلال الدنيا والدين ابوالمظفر محمد شاه السلطان

and on the reverse in Nos. 7 and 9 ^{ناصر امير} &c. In No. 8, apparently the Kalmeh. This prince took much pains to improve and adorn the city of Gour, and there may be still some few remains of public buildings erected at his expence.

No. 10, is a coin of his son and successor, Ahmed Shah, who died according to Ferishte and Nizam ud-din, in A. H. 830; but this coin does him the good service of prolonging his life to 836, which date it bears. His reign, however, must as to its earlier part be curtailed by the evidence of the dates on those of Jellal ud-din—

OBVERSE.

السلطان * * * شمس الدنيا والدين ابوالمجاهد
احمد شاه ابن محمد شاه السلطان

On the reverse, the Kalmeh and date :—۸۳۶

After an interregnum of a few days, during which, a slave of the royal household having usurped the throne, caused the sons of Ahmed Shah to be murdered, and was afterwards destroyed himself. Nasir Shah, a remote descendant of Iliyas Shah, the first of our series, was summoned by the nobles from the plough, to which the adverse circumstances of his family had driven him, to sit on the throne of his ancestors. Being

unable to record a royal paternity on his coinage, he seems to have contented himself with the simple repetition of his name and title—سلطان ناصر شاه in seven little circlets, occupying the obverse of his coin No. 11. The reverse is illegible. I have met with no other coin of this prince.

The next king of Bengal recorded by historians is Barbek Shah, whom they designate the son of Nasir Shah. But there is reason to reject this affiliation as incorrect; for Barbek Shah describes himself on his coinage as the son of Mahmud Shah, as does also Yusuf, the son of Barbek, as will be seen. The same Mahmud is also recorded on a subsequent coin of Fattah Shah. But historians make no mention of such a prince. Can it be that his reign has been entirely overlooked by history? or did Nasir Shah, at any period of his life subsequent to ascending the throne, change his name for that of Mahmud? There are great difficulties in either view of the matter, but it does not seem a very bold conjecture, considering the imperfect history of those times, that Mahmud Shah may have been omitted in the roll of princes that has reached us.* The remarkably long reign ascribed to Nasir Shah seems to afford room enough for the interpolation of another king; but on either supposition, I incline to ascribe to the father of Barbek Shah the coin No. 12; for an impression of which, I was indebted to the kindness of the late James Prinsep. The cufic characters on the reverse are not usual upon the Bengal coinage; but the small circlets, with the monarch's name on the obverse, seem to establish a relationship between this coin and the preceding one of Nasir Shah. The only words legible on the obverse are—

محمود شاه سلطان

On the reverse, the Kalmeh.

Of the coins of Barbek Shah, I have met with none; but to render as complete as possible the present series, I borrow that figured in plate No. 13, from Marsden's work—

* That there is nothing very extravagant in this conjecture may be inferred from the circumstance of the omission of one entire reign (that of the last Mahmud) by Ferishte. The reign of Yusuf Shah is in like manner omitted in the *Tabqât-i-Akbari*; but this may possibly be the fault of the transcriber who made the copy in the Society's Library. Since the above was printed, I have met with a coin of Mahmud, which bears a strong family likeness to those of Fattah Shah in the Plate.

OBVERSE.

السلطان الاعظم باربك شاه السلطان ابن محمود شاه السلطان

REVERSE.

The Kalmeh and date 873.

The next, No. 14, is a coin of his son and successor Yusuf Shah. For this handsome specimen I am indebted to the kindness of my friend Mr. Mascyk of Junghipore, whose skill in the acquisition of these relics is unrivalled. This coin confirms the affiliation of Barbek Shah, and leaves no room to doubt that a prince named Mahmud Shah sat on the throne of Bengal; but whether identical or not with Nasir Shah, we have at present no monuments to determine. It is most singular, however, that no mention should be made of this name in the history of the times—

OBVERSE.

شمس الدنيا والدين ابوالمظفر يوسف شاه سلطان ابن باربك
شاه سلطان ابن محمود شاه سلطان

REVERSE.

The Kalmeh and date—خزانہ ۸۸۳

After the death of Yusuf Shah, a youth of the royal family was raised to the throne, with the title of Sckander Shah, but was, after a few weeks, deposed for incapacity, and was succeeded by his uncle Fatteh Shah. Historians do not mention the genealogy of this king; but his coins, Nos. 15 and 16, which are, as far as I am aware, unique, make him the son of Mahmud Shah, and consequently the brother of Barbek Shah. The inscription on these coins runs from reverse to obverse—

السلطان ابن السلطان حلال الدنيا والدين ابوالمظفر فتحشاه
ابن محمود شاه السلطان فتحاباد * * *

Fatteh Shah was killed according to Ferishteh, in A. H. 896, by Barbek, a eunuch, who usurped the throne under the title of Sultan

Shahzada, and reigned about eight months. He was, in his turn, assassinated by an Abyssinian, named Mulk Andiel, who setting aside the legitimate heir, a son of Fatteh Shah, assumed the royal authority with the title of Feroz Shah. We must not be surprised if there remain but few coins or other monuments of those barbarous and unsettled times, when, as the Persian historian naively remarks, "to have killed the murderer of the king was deemed in Bengal a sufficient title to the vacant throne."* Of Sultan Shahzada there are no coins extant: perhaps none were ever struck; but Marsden has preserved one of Feroz Shah, of which, to continue the series, I here give a copy—

OBVERSE.

تاج الدنيا والدين فيروز شاه السلطان

REVERSE.

* * * * السلطان العهد والزمان

Date on the margin of the obverse—۸۹۷, 897.

At the death of Feroz Shah, he was succeeded on the throne by Mahmud Shah, stated by Ferishte to have been his son. Of this prince I have met with no coins; at least with none that can be, with certainty, ascribed to him. His reign was a very short one, and specimens of his coinage are not likely therefore to be numerous. Amongst the coins figured by Marsden, as those of the Patan dynasty of Hindoostan, is one of Mahmood Shah, so palpably that of a Bengal king, that it is difficult to imagine how it could be ascribed to any other. There is no date upon it to enable us to fix it with certainty upon the son of Feroz Shah; but the execution of the coin and the locale of coinage, فتح آباد of which several letters are legible, leave no doubt of the class to which it belongs: and as there is no other Mahmud with whom he can be confounded, unless it be the apocryphal father of Barbek (for the coins of Mahmud, the son of Husein, are very distinct from this), I have little doubt that this is the appropriate place for it—

* سالی چند این رسم بنگاله بود که هر که کشنده حاکم خود را بکشد و آنقدر فرصت یابد که بجای او بر تخت نشیند. Feristeh.

No. 18. OBVERSE.

السلطان العادل ناصر الدنيا والدين ابوالمجاهد محمود شاه
السلطان

REVERSE.

الموید بتايد الرحمن فتحاباد

The reign of Mahmud Shah was a short one. In A. H 900, he was murdered by Seddee Badr Dewaneh, who ascended the throne with the title of Mozaffer Shah. No. 19 is a coin of this execrable prince, which Marsden has erroneously ascribed, as the foregoing, to the Patan sovereigns of Hindoostan. In execution and other respects, it is so perfectly coincident with other Bengal coins, that there need be no hesitation in appropriating it to the present king, the only one of the name among those of Bengal—

OBVERSE.

شمس الدنيا والدين ابوالمظفر مظفر شاه السلطان خلد الله
ملکه فتحاباد

REVERSE.

The Kalmeh.

Mozaffer Shah reigned about three years, during which he rendered himself hateful to his subjects by his many atrocities. He suffered in turn the same fate which he had inflicted on his predecessor; and Ala ud-din Husein Shah, a nobleman of distinguished but not royal rank, ascended the throne by the usual path of blood. This prince enjoyed a degree of authority and safety, which had not fallen to the lot of any of his recent predecessors. Of his coins numerous specimens are extant, bearing testimony by their number and variety, to his peaceful and prosperous government. Nos. 20 and 21, are two out of many that have passed through my hands. The inscription continues from the reverse to the obverse—

السلطان العادل علا الدنيا والدين ابوالمظفر حسين شاه السلطان
ابن سيد أشرف حسيني خلد ملکه * * ۱۲ * *

Husein Shah reigned twenty-four years, and notwithstanding some unjustifiable proceedings in the early part of his career, was deservedly beloved by his subjects, and respected by surrounding governments. The emperor Sekandar, who had subdued the province of Behar, marched against Husein Shah ; but found it convenient to arrange a treaty of peace with so vigorous a prince, and withdraw towards Delhi, ere the commission of aggression on either side rendered a friendly adjustment impracticable. Ala ud-din died in 927 at Gour, where his tomb still exists. Many monuments of this reign are scattered over the country.

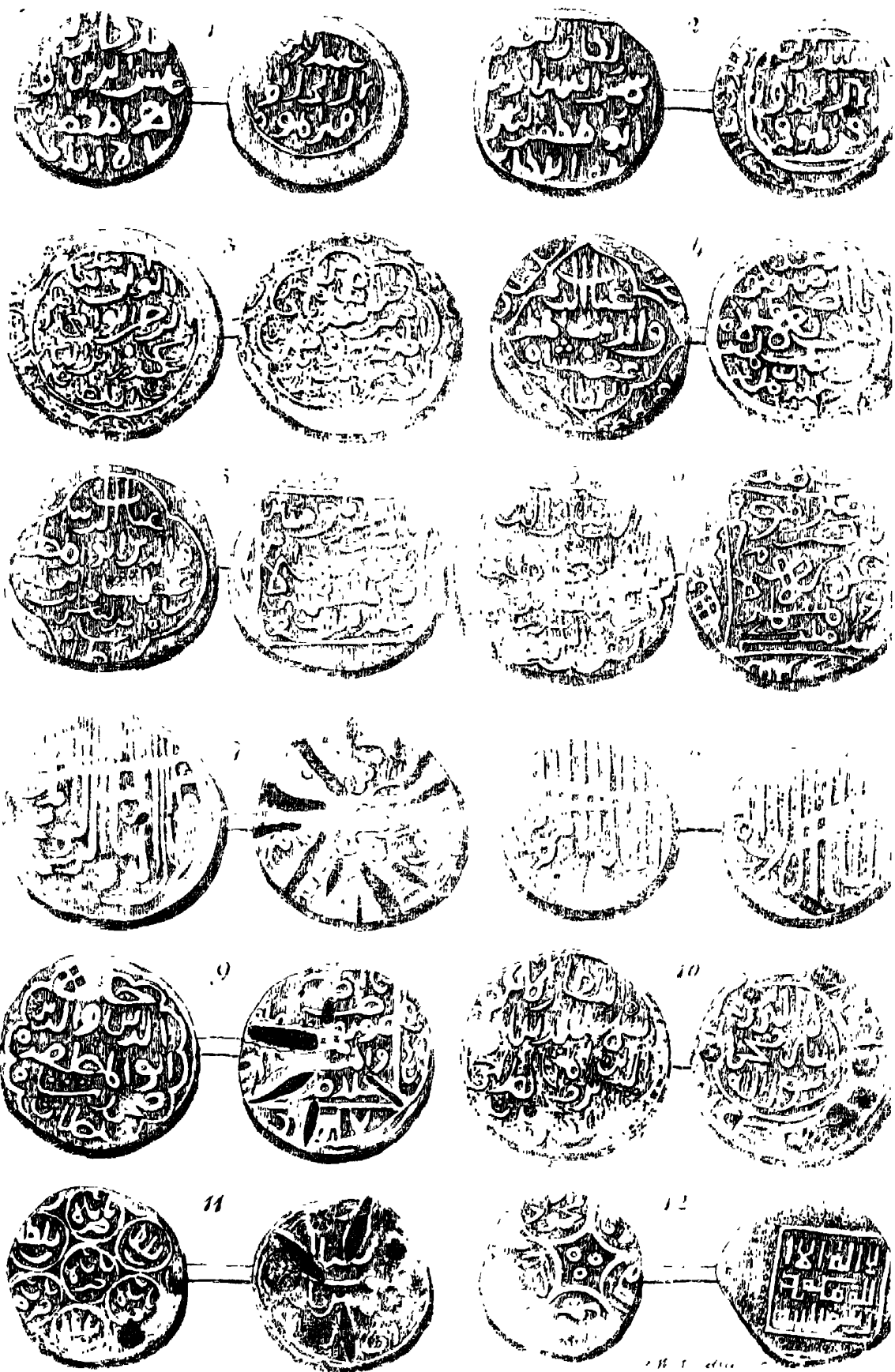
Husein Shah was succeeded by his son Nasrat Shah, or, as he is improperly styled by historians, Nasib Shah. From the accession of this prince may be dated the decline of the independent kingdom of Bengal. The chronology of his reign is involved in much perplexity, which unfortunately the dates upon the coinage of the times, do not assist in unravelling. Historians seem to have fused the events of two reigns, those of Nasrat Shah and his successor, into one ; and notwithstanding their comparative recency, there is more uncertainty and confusion in the history of those times, than in that of the earlier periods of the kingdom. The coins Nos. 22 and 23, are two of several that have passed through my hands. They have no date, but their legend and the locale of their coinage leave no doubt as to the propriety of their ascription to this prince. The inscription reads from reverse to obverse—

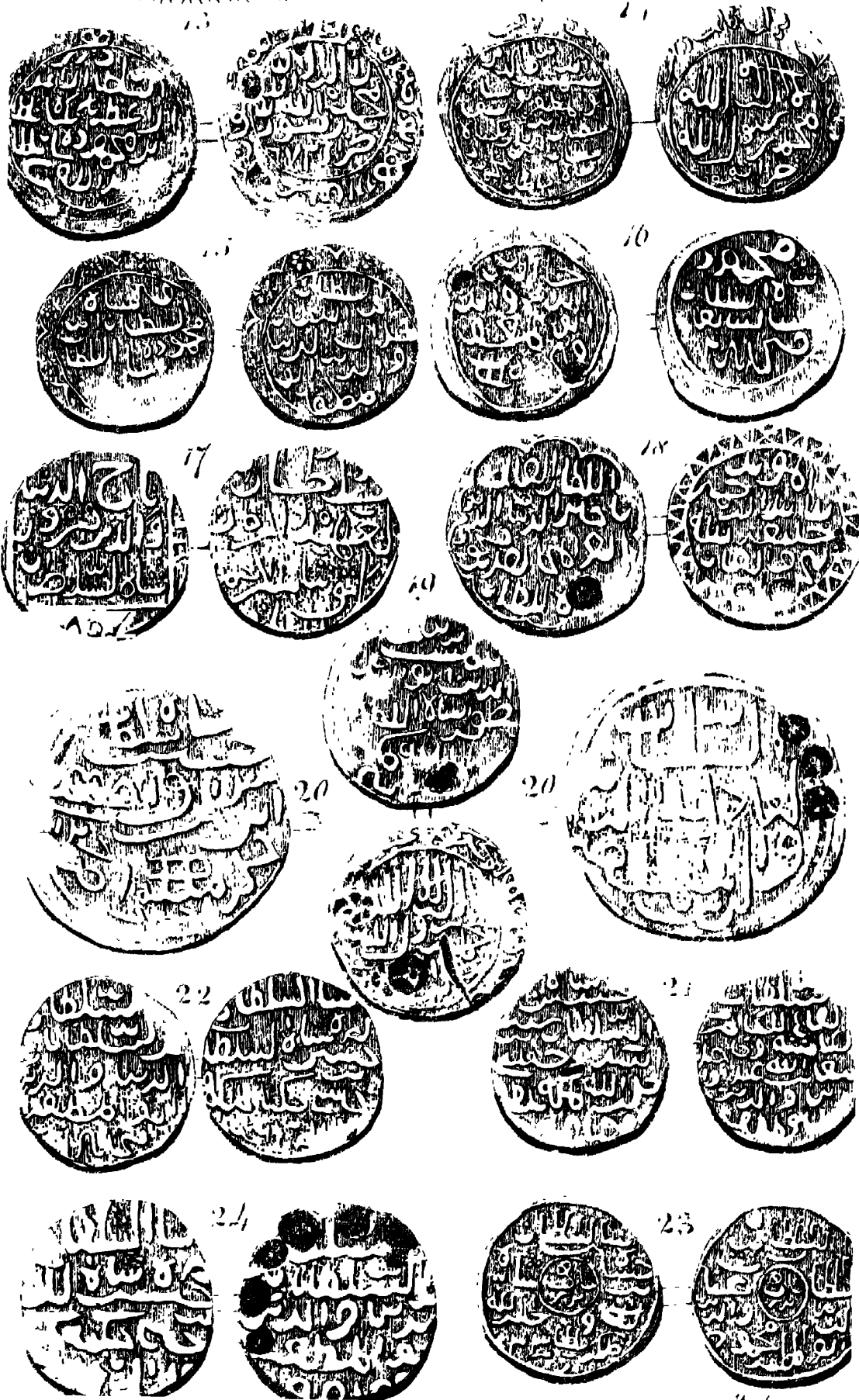
السلطان ابن السلطان ناصر الدنيا والدين ابوالمظفر [فتحاباد]
نصرة شاه السلطان ابن حسين شاه السلطان يبي خلد ملكه

Nasrat Shah came to the throne under the most favourable auspices, as far at least as regarded the internal condition of his government as bequeathed by his wise and vigorous father ; but from his cruel and tyrannical disposition gave great disgust to his subjects and dependents. He was assassinated by his own servants after a reign, (according to historians) of eleven years. This would make the date of his death 938, (according to others it was 940 or 943,) but this does not agree with the date inscribed upon the next coin.

Nasrat Shah was succeeded by Mahmud Shah. This king is altogether omitted by the author of the *Tabqât-i-Akbari*, who ascribes all

Independent Muhammadan Kings of Bengal.





the events of his reign to that of his predecessor. Ferishteh briefly mentions Mahmud as a nobleman of Bengal; but he is correctly described in a Persian history of Bengal now before me, as the brother of Nasrat Shah. I have had several of his coins in my possession, but find room in the present plate for one only, No. 24. They are all distinguished by having a small circle on each face, concentric with the rim of the coin, containing what appear to be the words نذرشاهی

REVERSE and OBVERSE read continuously—

السلطان ابن السلطان غياث الدنيا والدين ابوالمظفر محمود شاه
السلطان ابن حسين شاه السلطان خلد الله ملكه و سلطانه
٩٣٣

and on some of the coins the place of coinage *جنتاباد*. It is the date upon this coin 933, which is so irreconcilable with the chronology of written history. Mahmud died according to Ferishteh in 945, and with him was extinguished the independence of the kingdom of Bengal. The city of Gour was invested by the hostile armies of the emperor Homyun, who, on its capitulation, held his court there for some months.*

Sometime, however, elapsed ere the kingdom of Bengal was finally attached to the Moghul empire; for the different rulers, who were from time to time appointed to administer the government in the name of the emperors of Delhi, omitted no opportunity of seeking to throw off their allegiance, and occasionally to a considerable extent succeeded in doing so. The coins of these rebellious subjects, from Shir Shah, who usurped under Homyun, to Daud Khan, when the kingdom was finally absorbed by Akbar, as well as of those who attempted independence before the dynasty of kings which we have just been considering, may furnish an interesting subject of future notice; more particularly, if collectors who may be in possession of specimens, would be good enough to communicate impressions or drawings of them.

* For an interesting account of the state of Bengal at this period and the circumstances attending its conquest by Homyun, the reader may consult Joao de Barros' work, *Dos feitos que os Portuguezes fizeram no descubrimento e conquista dos mares e terras do Oriente*; fourth decade, ninth book.

*Description of a new species of Tibetan Antelope, with plates.** By B. H. HODGSON, Esq., Darjeeling.

RUMINANTIA.

CAPRIDÆ.

Genus.—GAZELLA ? CAPRA ? *New Genus.*—PROCAPRA MIHI.

Generic Character.—Horns in the males only. Nose ovine ; no lachrymal or inguinal sinuses ; interdigital foss small ; mammæ two.

Type.—*P. Picticaudata mihi.*

Rágóá and Góá of the Tibetans.

Sp. Ch.—Goat antelope ; with medial, elliptic, black horns, inserted between the orbits, and directed upwards and backwards with a bold curve and slight divergency ; the tips being again recurved forwards but not inwards, annulated nearly to the tips ; the rings being complete, separate, and 25 to 27 in number ; short, deep head, finely attenuated ; large eyes ; long, pointed, and striated ears ; very short, depressed, triangular tail, and long and delicate limbs. Pelage consisting of hair only, of medial uniform length and fineness, varying with the seasons like the colour. Above, sordid brown,† tipt with pale-rufous ; below, with the lining of the ears, the entire limbs almost, and a small caudal disc, rufescent-white ; no marks whatever ; no tufts to knees ; tail black. Length from nose to anus about three and a half feet. Height about two feet. Horns along the curve, thirteen inches ; straight, eleven inches. Habitat : the plains of Tibet, amid ravines and low bare hills : not gregarious.

The above generic character, it will be seen, is drawn up in conformity with the system of Mr. Ogilby,‡ who, being the latest, is probably the least inaccurate investigator of the vast and heterogeneous group of antelopes. But the fact is, that by far too little is yet known of the real and intimate structure of the majority of the species of this group, to admit of any present arrangement of its contents into generic divisions being satisfactory. A long tract of time will be needed to perfect our knowledge of recorded species ; and in the meanwhile, it seems better to distinguish generically new species whose organization cannot be reconciled with the results of existing systematic researches, than to go on loading the antilopine mass with additional discordant

* The plates are being coloured and will shortly be published with the title page and index of the present volume.—EDS.

† In summer.—In winter canescent-slaty, smeared on the pale surface with fawn. Internally the hairs slaty blue.

‡ Proceed. Zoological Society for December, 1836.

materials. Having said thus much in apology for bringing forward a new genus, I should add in explanation of my lengthy specific character, that a necessary regard to precision must render a dispensation with the canons of Linneus indispensable, so long as innumerable, vague, and shadowy species shall continue to be the plague of Zoological science. The exceedingly graceful little animal, which is the subject of our present description, is called by the Tibetans Rágóá, or Góá simply, and they allege that it is found generally throughout the plains of middle and eastern Tibet. But those plains, it must be remembered, are, for the most part, broken by deep ravines or low bare hills, and it is in such situations more especially, that the Góá dwells, either solitarily or in pairs, or at most small families, never in large flocks. The species is said to breed but once a year, and to produce ordinarily but one young-one at a birth, rarely two; and it is added, that it browses rather than grazes, preferring aromatic shrubs and shoots to grass, of which latter, indeed, its habitat is nearly void. I have not heard that the Góá is ever tamed, but it is killed for the sake of its flesh, which is esteemed excellent, and is free from all caprine odour, even in the mature males. In size, proportions, and superficial aspect, our animal bears considerable resemblance to *Antelope africana* and to *bennettii*; but not to *gutturosa*, with which last named species Mr. Blyth supposed it to be identical, upon inspection of a female transmitted last year by Dr. Campbell to the Asiatic Society. But the following description and drawings will serve clearly to distinguish it from all those species. The Góá is in size equal to *bennettii*, and is remarkable for the same exquisite grace and delicacy of form. The head is short, compressed, deep towards the horns, and thence much attenuated to the nose, which is neither bluff nor bristly, as in the Dseren and Chirú, but smooth and fine. The nostrils are narrow, nor do they, or the lips, show the least trace of a nude moist muzzle: the chaffron is straight; the eye very large, and (I am told), dark; the ears long, narrow, pointed, and striated. The horns, which rise between the orbits and are of medial size, larger considerably than in *africana* or *bennettii*, proceed upwards and backwards with a bold ibex-like curve, the last inch and a half only being somewhat recurved, and the divergency moderate and gradual, increasing almost uniformly from a basal interval of half an inch to a terminal one of four and a quarter inches. In young specimens the tips of the horns incline inwards as well as forwards, and as the backward arcuation of the horns is in them much less than in maturity, the horns of the young thus come to possess the lyrate form, which is hardly, or not

at all, noticeable in the mature animal. The horns are equally rounded to the front and back, compressed considerably on the sides, so that their basal outline is elliptic, and the compression and annulation extend to within one and a half inch of the tips. In a very perfect specimen now before me, there are twenty-seven rings, which go entirely round the horns, each ring being separate and distinct, and the longitudinal striation too faint to impair the continuity of the annulation. In the younger specimen, the compression of the horns is very trifling, and the rings, larger in front than elsewhere, are only six or seven in number; the animal being rather more than a year old. To proceed with the description of the mature male of the species, I may next note that the neck is rather thin, the body short and compact, the limbs long and exquisitely fine, the low hoofs compressed anteriorly, wide and rounded posteriorly, and that the false hoofs are large, but obtuse and adpressed. The tail is a mere rudiment, depressed, broad, triangular, entirely nude below, and furnished with radiating hairs, about one and a half inch long, on the sides and tip. The pelage or fur offers no peculiarity, consisting of hair only, neither fine nor very coarse, and of equable length of about one and a half inch. The skull presents the Cervine and Antelopine, not the Ovine and Caprine* form. There is no trace of suborbital, of superorbital, of maxillary glands or pores, nor of moist muzzle, nor of inguinal pores; and the interdigital pores, though distinct, are small. The females are hornless, and have only two teats, which are perfectly developed in the males also. There are no tufts to the knees, nor any of those marks upon the face, flanks, and limbs, which are so frequent among the antelopes. In regard to colour, my two specimens, which were brought here in November, and killed, no doubt, in summer, exhibit above and laterally, a dull and somewhat purpurescent-brown, freckled with hoary, owing to the pale fawn tips of the hairs, and below rufescent-white, which colour likewise is extended all over the limbs, over the insides of the ears, the back parts of the head (in the old animal), and the postea^r margin of the buttocks, whence it spreads like a small disc round the tail, becoming also more rufous there; and thus the tail, which is black itself, assumes that contrast of colours that has suggested the specific name—*Picticaudata*. Dr. Campbell's specimen of a female is paler in colours than my males, the superior surface being hoary-blue or canescent-slaty; and as such, is the winter hue of so many other Tibetan ruminants; it is probably also that of the Góá. I have said that the limbs are entirely colourless; but there is, especially in

* See Journal Asiatic Society of Bengal, No. 111, for 1841.

young animals, a faint list of colour passing down their outsides to the hoofs. This species is said to be totally void of caprine odour in the living state. The skins certainly are so. The small testes are lodged in a neat hairy scrotum, and all the adjacent parts, including the groins, are entirely clad in hair, there being no trace whatever of those sinuses in the groin which are so highly characteristic of the most typical genera of the antelopes, that is to say, *Antilopa et Gazella* of the moderns. Still the Góá, in my judgment, is closely and essentially affined to the antelope group, by the extreme delicacy of its form; by its manners; by the cervine shape of its scull; by its black, round, and ringed horns;* and lastly, by the absence of caprine odour, notwithstanding that its structure, according to modern views, is caprine, not antelopine: and, in fact, it is throughout structurally a true *Capra* of Ogilby, save that the females are hornless. This character, together with the others just mentioned, forbid me, however, to class the delicate graceful Góá with the goats proper, whilst the ovine nose, and the want of suborbital as well as of inguinal sinuses, renders it impossible to range our animal with the proper Antelopes or Gazelles, though it is more nearly affined to the latter than to the former. The ovine nose seems to me a very important character; and Mr. Ogilby, when he classed the antelopes proper, typed by *Cervicapra*, in a family characterised by '*Rhinaria nulla*,' ought apparently to have given them as a subordinate and generic mark '*Rhinaria parva*,' because the nude moist muzzle is a material diagnosis, very decidedly forthcoming in the Antelopes, less so in the Gazelles. Col. H. Smith considers that Mr. Ogilby has laid undue stress upon the interdigital pores as a generic character; and yet Mr. O's. most accredited predecessors in classification had insisted upon the presence or absence of *this* character, *together with that of the suborbital pores*, as constituting the distinctive marks of *Ovis* and of *Capra*. True, they were in error in this instance, for goats *have*† interdigital, though not lachrymary, pores, and consequently Mr. Blyth's suggested genus *Ammotragus* is based on misconception, though accidentally true to nature, at least in my view of her, and without reference to systems. But, however falsely used heretofore, still it does not follow, that each of these characters (the pores) is not of importance, and there can be no doubt that either of them may be rationally presumed to be so, and to affect the conditions of existence, the habits, and economy of the animals; whereas, several of

* The form of the horns is rejected from modern definitions of genera, and wisely so *quoad* the particular flexure. But still I incline to the older notion that round, black, and ringed horns, as opposed generally to grey, angular-keeled, and nodose horns, serve well to indicate Antelopine or Caprine tendencies.

† Mr. B. expressly says *not*, and thereon founds his genus. Let him look at nature instead of books, and he will see his error.

Cpl. Smith's proposed diagnostics of genera have no pretensions to be so regarded.

With regard to the specific distinctness of the Góá, there must remain some doubt, until its essential and trivial characteristics, as above given, have been compared with those of the species it most resembles. Books cannot well be trusted on this head, and the whole of my collections have been deposited in the British Museum. The size and proportions of the Góá are quite those of *bennettii*, and both species are alike distinguished by black tails and horns of somewhat similar form. But the difference of habitat, of pelage, of colour, the inguinal pores, knee tufts, and females horned of *bennettii*, not to mention differences of detail and of size in the horns and tails, sufficiently distinguish this species from the Góá. *Antilopa arabica*, or the Ariel, has (like *bennettii*?) the structure of a true Gazella of Ogilby, which at once suffices to prove its distinctness from our species, not to dwell on diversities of colour, manners, habitat, &c., all very obvious. Lastly, *gutturosa*, or the Dseren, is a much larger animal,* with much smaller horns; and its suborbital pores, its knee tufts, its protuberant larynx, and glandular preputial bag, are all marks impossible to be mistaken, and not found in the Góá.

The following are the dimensions of a fine old male of the Góá :

Snout to rump,	3	7
Height at shoulder, ..	2	0
Head to occiput,	0	8
Head to base of horns, ...	0	6
Tail,	0	0 3-4
Ears,	0	5
Fore-leg, top of cannon-bone to end of hoof,	0	9 1-8
Hind-leg, ditto ditto ditto,	0	10
Horns, length by curve, ...	1	1
Ditto ditto, straight,	0	11
Ditto, greatest divergence,	0	4 3-10
Ditto, basal interval,	0	0 4-10
Ditto, terminal interval,	0	4 3-10
Ditto, periphery of base,	0	†

On the Wild Sheep of Tibet, with plates.

CAPRIDÆ.

Genus.—Ovis.

Species.—O. AMMONOIDES MIHL.

In No. 111 of the Bengal Asiatic Journal for 1841, I have described two species of wild sheep belonging to the Himalaya and Tibet. Having recently received a splendid specimen of the male of one of these species, I recur to the subject with a view of more fully fixing the characters of this animal, whose close affinity to the Argali of Pallas renders

* The Dseren is $4\frac{1}{2}$ feet long, and $2\frac{1}{2}$ feet high. Horns 9 inches.

† Sic in MS.—EDS.

it somewhat difficult of satisfactory discrimination. To Dr. Campbell's kind arrangements in my favour, I am indebted for this specimen, as well as for the Góá, which were all received in November and killed in the summer, and hence exhibit the summer dress of the animals.

The present specimen of the *Ovis ammonoides* is that of a male of eight years, and having the scull and members complete, and being otherwise in perfect condition; it displays the characteristics of the species in a most satisfactory manner.

This magnificent species of sheep measures from five and a half to six feet in length, exclusive of the tail, and from three to three and a half feet high at the shoulder. My undistorted specimen, as laid simply on the table, gives the former dimensions, and the latter, with a slight degree of tension. The head to the occiput (straight) is seventeen inches, and twelve inches to the base of the horns. The tail is but two and a half inches long, or three and a half with the hair; and the ears are four and a quarter inches. The horns, by the curve, are above three feet, and they have a basal girth of fifteen inches; the age of the animal being eight years, as marked on the horns. The stately and rather large head, has great breadth, and still greater depth at the insertion of the horns, and is thence gradually narrowed to its fine nasal extremity. The forehead is concave,* exhibiting a considerable dip from the crest of the frontals to the fore-angles of the eyes. The chaffron is straight, or arched only in the slightest degree. The nostrils of the ordinary ovine shape, have their mere margins, and a confluent stripe down the front of the upper lip, nude. The eyes are of medial size, and beneath them are the usual lachrymal sinuses, deep but immobile, and of good size, but hid by hair which clothes them inside and out. The ears are small, narrow, pointed, and striated. The massive horns are inserted obliquely on the top of the head, considerably behind the orbits and in contact. They are triangular and compressed, having nearly twice as much depth as breadth at the bases. Their frontal aspect, which is presented directly forwards, is flat, and is extended nearly to their tips with gradually diminishing breadth. Their dorsal aspect is in general, cultrated, but widened roundwise towards their bases. Their lateral aspects or sides are, the inner one, nearly flat, or somewhat concaved, and the outer one more plainly convexed; and thus, though the trigonal form of the horns is decided, it is not perfect; the outline of the base being ovoid.

* Cuvier says, *Ovis* has a convex, *Capra* a concave, forehead; and he even makes generic marks of these peculiarities. But in Cuvier's day, genuine wild specimens of either genus were too rare to admit of just discrimination and definition of generic characters.

The transverse wrinkles are very numerous and conspicuous, exhibiting on the frontal surface a succession of large ridges and furrows: on the sides of the horns they are much less developed, particularly on the inner side, and they gradually diminish from the bases of the horns to the tips, the last five inches being void of them. The curvature of the horns describes a fine backward and outward sweep, and thence downwards and forwards, so as to complete about two-thirds of a circle, when there is a second retroversion, leaving the points directed forwards and outwards with an inclination backwards, as though, in old age, there would be a second spiral curve. The neck is rather thin, the body full, and somewhat elongate; the limbs elevated, clean, and strong. The hoofs, which are very fine, hard and black, are less deep and perpendicular than in tame sheep, and rest on longer laxer pasterns. The hoofs are compressed and scooped beneath anteriorly; broad, full, and rounded posteriorly, or in the position of the *frog* of solid ungula. The false hoofs are large, but not salient or pointed, being blunt tubercles rather. All the four* feet have interdigital pores of good size, in which some cerous matter is lodged. The small stag-like tail is cylindrico-conic, clad beneath towards its tip, and scantily furnished with hair, which seems as though it had been rubbed off.

The pelage, or vesture, consists entirely of hair, without a trace of wool beneath it. The hair is of the usual coarse, brittle, quill-like, and internally wavy character, and on the body generally is only three-quarters to one inch long; on the under-surface of the neck two and a half inches, and on the limbs and head is close and fine, with not half the length it has on the body. The elongation of the hair on the abdominal surface of the neck, extends from the throat to the chest, and is distinct upon close examination, but not otherwise, for there is no appearance of a pendant mane. The colour on the dorsal surface of the animal is saturate dull-brown; on the flanks, entire head and neck, and fronts of the limbs, the same, but mixed largely with hoary, so as to create a pepper-and-salt hue almost; on the belly, insides of the limbs, margins of the buttocks, tail, and a large disc round it, rufescent-white. There is no black or dark stripe down the vertex; but the highest part of the body is the darkest, and is nearly black, the colour being extended in a line to the tip of the tail, so as to divide the white disc and tail in a

* I am thus particular as to this organ, because there is much yet to be learnt about it in regard to all the Ruminants: for example, the Mantjac of the Sub-himalayas (*Cervus ratwa*) has these digital pits only in the hind-feet, and the Saumer (*Cervus aristotelis*) is devoid of them entirely, though the best books say otherwise. I speak by virtue of old memoranda, having no specimens of these deer now to refer to; but those I examined were *alive*, and I think I noted carefully.

notable manner, though the disc itself be vaguely defined. Such is the summer garb. In winter the dark hues are much paler; the back and flanks being slaty-blue internally, but canescent-fawn on the surface. The female of this splendid species is worthy of her mate, being little inferior to him in size, and provided with a fine pair of horns. I possess two good specimens respectively, of eight and nine years old; and, as a very slight degree of tension applied to the skin of the larger, (which is not distended in the curing) gives five and a half feet for the length, and three feet for the height of the animal, I apprehend that the male cannot be less than six full feet long, and three and a half high, and consequently, that six and five and a half feet, and three and a half and three feet, may be safely assigned as the respective sizes of the sexes in length and height. These females were killed, like the male, in summer,* and they resemble him in colour and aspect so closely, that it becomes only necessary to add to the subjoined details of dimensions a notice of the female horns. The horns, then, have the same characteristics as those of the male, but softened and exhibited on a smaller scale. They are, in fact, about half the size of the male's horns, but being less curved, they make a greater longitudinal show in proportion to the size than his. Their thickness, like their length, is about half that of the male's horns. They are very much smoother, and by their diminished thickness, they are separated at the bases. Their flat frontal aspect is not extended far up, owing to the greater compression of the horns; but that aspect, being presented directly forwards, as in the male, is very palpable towards the base of the horns, which ascend with a sickle-like bend upwards and outwards, greatly divergent, but not describing more than a half of the concentric or circular curve. Thus their points are bent down with yet a faint indication of the second retroversion, so that there is a slight obliquity outwards of the blunt downward tips. The suborbital and interdigital sinuses are very distinct in these females, but the caudal disc less so than in the male. Their tails are *very* short, and the chaffron of the females is perfectly straight, from the setting on of the horns to the nose. The teats are two.

The following are the detailed dimensions of both sexes:—

	<i>Male.</i>	<i>Female.</i>
Length from nose to anus,	5 8	5 4
Height at shoulder,	3 2	2 10½
Head to occiput,	1 5	1 2
Head to base of horns,	1 0	0 11

* One of the females still retains enough of the winter garb to show that the winter colour of the species is slaty-blue, overlaid on the surface with fawn, or pure fulvous. In the summer garb the dark or black-brown of the upper-parts is extended very low on the flanks, behind the elbows; and the dark list down the limbs is very palpable, though much mixed with hoary.

Head, width of, between the outer margins of orbits, .	0 8	0 7½
Head, depth of, from frontal crest to lower edge of { jaws,	0 9½	0 0
Head, length of, from nose to fore-angle of eye,	0 9½	0 8½
Fore-leg, top of cannon-bone to tip of hoof,	1 2½	1 0½
Hind-leg, ditto ditto,	1 4½	1 2
Ea	0 4½	0 4½
Tail only,	0 2	0 1½
Tail and tuft,	0 3	0 2½
Length of fore-hoof,	0 3	0 3
Breadth of ditto,	0 2½	0 2
<i>Horns.</i>		
Length by curve,	3 1	1
Basal, depth of,	0 6	0 2
Basal, width of,	0 3½	0 1
Basal interval,	0 0½	0 1½
Terminal interval,		1 3½
Circumference of base,		0 8

Remarks.—No great while ago only two or three species of wild sheep were recognised by men of science. But Mr. Blyth has all at once produced a splendid cornucopia of species,* founding many of them however, upon an inspection of the horns solely. I question the possibility of so establishing species or genera in this group; and, as a proof of the necessity of examining carefully the *entire structure* of the animals, I need merely refer to Mr. Blyth's signal error, already adverted to, in reference to the organization of *Capra* or the domestic goat, and to an oversight equally important to be mentioned presently. A strong conviction of the necessity of extreme caution in the examination of the *Capridæ*, while it must serve as an apology for the tediousness of the present paper, will, I trust, by its results, enable those who are in possession of Pallas' *Ovis ammon* and Dseren, to determine whether I have, or have not, justly made out the distinctness of my *ammoides* and Góá. In further proof of the necessity of extreme caution and of research carried into the entire structure of the *Capridæ*, I may mention that my *Ovis nahoor* is, like *Tragelaphus*, devoid of the sub-orbital sinus, whether in the skull or skin. In drawing up my original description of this species, I too easily presumed that these organs were forthcoming; but in my amended description I noticed the absence of all trace of them in the skull, though still without advertence to the skin. Further conversancy with nature has, however, since then given me a greater distrust of books, and, having recently procured a fine specimen of the Nahoor, I ascertained beyond a doubt, that the animal, though possessed of interdigital, is entirely devoid of suborbital, pits. Simultaneously I obtained two specimens of Mr. Blyth's *Ovis barhal*, and found them also provided with interdigital, but wanting suborbital, sinuses, as in the Nahoor, from which species I now incline to regard

* Proceed. Zool. Society, August, 1840.

the Barhal as distinct. And, as these round-horned sheep, void of the lachrymal pits, unmaned, and furnished with a well developed tail, appear to form a natural group, distinct from the Argalis, and from Tragelaphus—also a separate type apparently, however misdiscriminated by Mr. Blyth,—I beg leave to suggest for this group the generic appellation Pseudois (*ψευδοῖς* et *οἶς*) lest, as has too frequently happened to me, some closet systematizer, who never was at the pains to examine nature for himself, should step in “to name and classify” (the work of a moment, *as ordinarily done*,) my discoveries. The Argalis and Moufflons (not to mention the Tragelaphi) seem to form two striking groups among the wild sheep: our Nahoor is a complete Moufflon: hence it occurs to me to ask, if the Corsican animal is, like the Himalayan, devoid of suborbital sinuses? This query may seem presumptuous; but any one who will refer to the Proceedings of the Zoological Society for March 8th, and November 8th, of 1836, may satisfy himself that this sort of analogical inference led me justly to determine, without having seen it, the structure *quoad hoc* of an animal (Cambing útan), which the learned of Europe had long been in possession of, and yet had mis-stated that structure. To come nearer to the point, Mr. Blyth, a professed naturalist, even while writing a monograph on Ovis, and insisting on the distinctness of his *Ovis barhal*, has entirely neglected to notice that striking structural peculiarity, the absence of the suborbital sinus. Should the Barhal and the Nahoor prove to be distinct species, and I now think they may, we shall have, already, two types of Pseudois, and I suspect the Moufle will make a third. Mr. Blyth’s industrious researches indicate at least, if they do not prove, the existence of many wild species, which, if substantiated, will doubtless be found to present several peculiarities of organization of generic or sub-generic value. That gentleman is still sanguine as to the discovery of more new species: but I cannot agree with him, when he insists that none of his numerous wild species can be regarded as the type of the tame animal, *because* all varieties of the latter exhibit long tails. Now the several varieties of the tame sheep in the Sub-himalayas and Tibet, six in number, as known to me,* have all of them short deer-like tails, and some of them in the form of their horns resemble *ammonoides*; and all, like *ammonoides*, possess the feet and eye pits. The Highlanders have such a horror of long-tailed sheep, that they will not even let them graze in their fields! Wherefore, Mr. Blyth has not far to look for tame sheep with short tails.

* The Húnia, the Pélúk, the Silingia, the Barwál, the Cágia, the Hálúk.

Notice of the Nicobar Islands, by the Reverend P. BARRE.

The Nicobar Islands, lying between the sixth and tenth degrees of north latitude, have for sometime attracted very much the attention of the public in India, not so much on account of the productive qualities of their soil, but because of the Islanders having committed repeated murders on the crews of several vessels under the British Flag. Vessels sailing from the Coast or from Penang have, for a long period of years, touched there during the NE. monsoon to take a cargo of coconuts, as do also large China junks, Malay prahus, and Burmese boats from Bassein, Rangoon, and the Tenasserim Coast. Not a single year has passed without hearing of some vessels or boats being lost. But as no one suspected the Islanders to be capable of piracy, the loss was always attributed either to bad weather or to the incapacity of the captains. It is but a few years since Government has been convinced, that the Nicobarians, although destitute of real courage and bravery, have been guilty of the greatest crimes, in murdering peaceful people, who could not suspect that the natives, whose appearance is so simple and timid, would ever conceive and dare to execute such treacherous designs. So there is very little doubt now, that a great part of the vessels which were supposed to be lost in the Bay, have been cut off and plundered by the natives of these islands, and their crews found there a watery grave.

The various islands forming the group of the Nicobars are Chowry, Teressa, Bompka, Tilhanchong, Karmorta, Nancowry, Katchall, Car-Nicobar, the Little Nicobar, the Great Nicobar, and some other smaller islands. The SW. monsoon begins in the latter part of May and lasts till October. During that period, rain falls in great abundance, and the wind blows hard: there is a heavy swell, and it is dangerous to approach the islands. Few vessels touch there during that monsoon; but in the NE. monsoon, vessels, and Burmese, Chinese, and Malay boats are seen there taking a cargo of coconuts, betelnuts, and collecting birds' nests, trepan or sea-slug, ambergris, tortoise-shell, &c. They give in barter black and blue cloths, coarse handkerchiefs, red cloth, cutlasses, Burmese daws, silver or German silver spoons, ardent spirits, tobacco, red woollen caps, old pantaloons and jackets, black hats, &c. When a vessel reaches the place, the people of the village contract for supplying a cargo

in so many days, and they seldom fail to fulfil their engagement; they take in advance generally the goods given in barter.

The Nicobarians are not very expensive in their dress: a small piece of blue cloth, from three to four inches broad, and four or five feet long, tied round their loins, is the covering of a man; sometimes they encircle their heads and loins with young branches or grass. When the headmen of the villages go on board the vessels, they are more decently clad: they have a black hat or red cap, coat, jacket, pantaloons, &c. The women in opposition to the custom of persons of their sex in other countries, shave their heads, wrap round their loins grass tied with a string, about a cubit broad; and on great occasions a piece of blue cloth over the grass. When they appear in public, they generally cover their breasts. Men and women use so large a quantity of betelnuts, lime, and betel leaves, that their teeth are as black as ink; and the space between them, being filled with that matter, they appear as a solid piece, much like the horn invested in the jaws of the tortoise.

It is very difficult to have an accurate notion concerning the origin of the Nicobarians. They have projecting cheek-bones, flat visages, flattened nose, scanty beard, straight black hair, and Chinese eyes. Their complexion is dark-olive; they are corpulent, muscular, and well-made; but their legs are rather short in comparison with the trunk; the lower extremity being more developed than the upper one. Their general size is from five feet to five feet two inches. But the inhabitants of Chowry are of a darker complexion, more muscular, and have an air of independence, which is one characteristic mark of the Burmese. I saw some men and women at Teressa belonging to Chowry, and judging by them, the general height of these Islanders must be from five feet five inches to five feet ten inches. Although these people appear to hold some relation to the Malays on account of the resemblance of many of their features, yet the shape of their eyes, their manners, religion, language, and many characteristics are so different, that they must be considered as a particular race. The Malays having not settled there, the Nicobarians have preserved the pure blood of their ancestors. I am not far from thinking that they belong to the same race of people who formerly lived on the sea-shores of Sumatra. When the Malays settled in the island, they took possession of the whole of the level country, and compelled the Battas, the original inhabitants, who would not mix with

them, to take refuge in the interior of the island, so that race is now master only of the mountains.

There is a tradition amongst the Nicobarians, that the first stranger who came to their island, seeing something moving on the sand, perceived small persons of the size of an ant. He took care of them till they attained the common size of men, so began the origin of the Nicobarians. According to another tradition, a man sprung out from the ground, and taking a bitch for his wife, had two children, who, in the course of time, peopled the island. A man murdered was buried, and from his head sprung the first cocoanut tree; sometime after all the inhabitants were destroyed by an inundation, with the exception of one man and one bitch, who again peopled the island. In the course of time a vessel having a prince for captain, visited Teresa, who on his landing was murdered by the inhabitants; his wife was taken on shore, and treated with the greatest respect, but the spot on which was shed the blood of her husband, being always before her eyes, she was very unhappy. On one night she was advised in a dream by her mother to remove that bloody spot from Teresa: she did so, and then Penboka was separated from that island.

The inhabitants of Teresa believe that the people of Nancowry are the descendants of Malays, who, visiting in their fishing excursions that island, lost their boats and settled there. The Car-Nicobar people are, according to them, descendants of the Burmese, who in a revolution which took place in their country, were obliged to run away from the Tenasserim Coast, and landed at Nicobar.

The dialects spoken by the Islanders differ more or less; and the difference does not arise only from pronunciation, but from a great many words which are not the same; so that the inhabitants of one of the islands can scarcely make themselves understood by the inhabitants of another.

The Islanders having no written language, the few words to be found at the end of this letter, have been therefore orally communicated to me. I wrote them as the sounds occurred to my ear; without presuming to say that I have succeeded in representing them correctly.

The Nicobarians shew great skill in the building of their houses and boats. Their dwellings are strongly built: they are supported by large posts, and are elevated above the ground from eight to nine

feet. The flooring, which is made of planks, has a circular form, and the roof, which has the shape of a bee-hive, is covered with grass called Lalung by the Malays, about a foot thick. They are without windows, nor have they any partition. The entrance is from below: these houses will last from ten to twelve years without repairs; and there is no other furniture but earthen pots, cocoanut-shells to carry water, a round piece of wood which they use for a pillow, spears, knives, swords, and the ika, which is their general food.

Their boats vary in size from six to twenty feet long, and from two to four feet broad, having an outrigger: they are generally safe: two or three poles support their sails. It is a pleasure to see how well these natives manage their canoes when meeting the surf.

These Islanders are lazy and inactive, cowardly, treacherous, drunken, and I am sorry to say, that crimes against nature are not unknown to them. Every evening the villagers meet in one of the houses, and there they spend part of the night in drinking, singing, and dancing. Like children, they desire every thing they see, without troubling themselves whether the object be useful or not. When a vessel arrives, the headman of the village in his best dress goes on board, accompanied by some other persons, whom he always calls his children. They offer to the captain young cocoanuts, yams, and plantains. If asked what they wish to have in return, their answer is—*Hahekienten man*, which means, 'You are my father.' Although they seem to have no wish for all that they see, yet they expect to get drink or something else. The headman then hands the certificate he has received from former captains. It is impossible to avoid laughing when the high sounding names of Byron, Smith, Rodney, Nelson, &c. are given to the bearers of the certificate. If a captain treat some of them very kindly, and make to them some presents, he is sure that some of the Islanders will be called after his name. In the year 1832, I saw at Rangoon two persons from Car-Nicobars; they paid a visit to the Italian Bishop who was there, and they were so much pleased with some trifle they received from him, that the old man told him, 'My name being Captain John, I cannot take your name; but my son not being Captain yet, he shall be henceforth called Captain Bishop.' The Nicobarians have different names. If they go on board an English vessel, they take an English name; if on board a junk, they take a Chinese name, &c.

• The Nicobarians appear to have a great facility for learning languages. I do not mean to say, that they speak the languages very well; but they are able to make themselves understood in many. The Portuguese, spoken in Mergui, is their favourite language; and the respectable people of the different islands are more or less acquainted with it. The Malay is well understood by some of the people of Nancowry, and the Great and Little Nicobars; some of the people can speak a little English, Burmese, Chinese, Hindustanee, &c. &c.

In mentioning the character of these people, I have stated that they are treacherous, and as a proof of it, I shall relate the following facts:— In 1833, a Cholia vessel was cut off in the false harbour of Nancowry, and every person on board murdered. In 1839, the pilot of a Whaler being anchored at the same spot, the captain, some of the officers, and the greater part of the crew, were slaughtered by the natives. In 1844, Captain Ignatius Ventura, from Moulmein, commanding the *Mary*, anchored on the north side of Teressa, at two o'clock in the afternoon: one hour after, the captain and crew were murdered. In the same year, Captain Law met the same fate at Karmorta. Another vessel, three years ago, after having taken part of her cargo at Katchall, sailed to the false harbour of Nancowry to complete her cargo, there also the captain and crew were slaughtered by the natives. The headman of Katchall, who had given a part of the cargo to the above vessel, related the fact to me. He spoke in the highest terms of the captain of the said vessel, as likewise of Captain Ventura. I was well acquainted with the last mentioned person; he was most kind and honest, consequently incapable of provoking any person. But it appears that it was not so with the vessel first mentioned, they highly exasperated the natives by their conduct.

It does not appear that the Nicobarians have any exact idea of a Supreme Being. They say, it is true that there is a great spirit, whom they call *Reos*. But I suspect that this word they have received from the Christians of Mergui, who have been visiting these islands during the last two centuries: the words Deos and Reos are so nearly alike, that the one appears to be a corruption of the other. They admit the existence of spirits to whom they attribute sickness, death, and scarcity in the crops; they offer them pigs, fowls, &c. to propitiate them. Once in the year, and sometimes when great sickness prevails, they build a large canoe, and the Minloven, or priest, has the boat carried close

to each house, and there, by his noise, he compels all the bad spirits to leave the dwelling, and to get into the canoe; men, women, and children assist him in his conjuration. The doors of the house are shut; the ladder is taken out; the boat is then dragged along to the sea-shore, where it is soon carried off by the waves with a full cargo of devils; those malignant spirits are effectually prevented from taking their abode again in the village by a screen made of pieces of cloth, which keeps out of their baneful sight, the place where the houses stand. This feast, which takes place at the end of the SW. monsoon, is called by the Nicobarians *Kew Hivée*. In the beginning of the NE. monsoon, all the women are obliged to fast for three or four days. During that time, they dress as mad persons, and go from house to house singing and dancing. The Nicobarians have also in their houses idols of the most ugly shape, representing men and women; some with European dress, and some with the scanty dress of the natives. They have short and thin legs, and a large belly, and from their necks hang spoons, cocoanuts, &c.

The Nicobarians have such a high idea of the power of Europeans, that to them they attribute the creation of their islands, and they think it depends on them to give fine weather, nice breezes, &c. They are convinced that the *Minloven*, can cure every disease, make people sick, and also deprive them of life. Should any one be suspected of causing death, the villagers would immediately kill him: this has been the case several times. When the French Missionaries were living at Teressa, the villagers went to them on several occasions, saying: 'Senhor Padre, give us some rain if you please; our yams are dying, we know you can do it if you like.' And on one occasion, the priests were threatened to be murdered if there was no rain. On the following day, fortunately, a strong shower fell during the night, and the people thanked them most cordially. One of the clergy, being on board of their canoe in his way from Chowry to Teressa, the crew told him—'Senhor Padre, some breeze if you please': sometime after, the wind blowing a little fresh, '*basta*,' cried they, 'it is enough, do not give any more of it, otherwise the boat will be capsized.' One day, Gold Mohur, who is the most respected man of the Laxis, a village situated at Teressa, went to the Missionaries, telling them—'You think perhaps that the inhabitants of this place are bad people. I will convince you of the contrary; to-morrow I will

take all the inhabitants to you, and by examining their hands, you will see that there is not a single murderer amongst them.' When I was at Katchall, speaking to some of the people about the murder committed on board of vessels, every one of them showed me the inside of their hands, saying, 'Is there any spot of blood on them?' These people are convinced that Europeans, by looking into their hands, know if they have been guilty of some crime.

The population of the Nicobar Islands is from six to seven thousand souls. The whole of them live on the sea-shore : their villages, which are surrounded by cocoanut and betelnut trees, are small ; seldom more than three or four houses are seen on the same spot. The men have only one wife with the exception of those of Chowry island. The women enjoy the privilege of divorcing when they think proper ; so, should another man captivate their heart, they send away the first husband, and associate with the man who has been fortunate enough to please them. Not having children being considered as a curse, in that case the separation always takes place. I saw at Tressa, a woman who had been married on that account nine times. It is the custom for young people to live one year as husband and wife before the marriage ceremonies take place. Should they live on good terms, and be happy during that period, then the couple is united in the presence of the villagers, and of the Minloven. A feast is given to all the friends and relations ; large pigs are killed ; those that are invited daub their faces with the blood, &c. Should the husband die, the wife is seldom married again.

The women during their course, daub the whole of their body with the blood of pigs and fowls ; and they drink freely the water in which they have infused several roots. When *enceinte* dancing and singing are not allowed in their village ; nor can the relations sell pigs or fowls to make curry. When a child is born, it is a great rejoicing amongst them : they feast for several days. When a person is sick, they hang to his neck young cocoanuts, a spoon, and small carved figures, to amuse the spirit ; small baskets filled with betel leaves are suspended to the trees, and the Minloven is sent for. He never gives any medicine, but excites friction on the different parts of the body : he binds the members of the sick in different directions ; claps his hands, and makes a great deal of noise. He gives orders to the relations to cut some of the trees, and to tie to the posts of the house some of their

branches, with young cocoanuts. Should the person be in his last extremity, the Minloven gives a song of farewell. Friends and relations never cry at the death of a person : their mourning is in the shaving of their heads : the villagers go to the house where the corpse is, and there they drink till they are intoxicated. A coffin is made of a boat cut in two, and some hours after the death, the body is carried to the grave, on which they put cocoanuts and plantains ; the Minloven, taking wooden poles, goes to the sea-shore, and fixes them in the sand in such a manner, that when left to themselves, they fall ; he then takes them again and throws them in the sea : when he reaches the village, he makes a great noise, and the villagers throw out immediately the ashes they have in their houses. If the dead be poor, a few days after the burial the corpse is taken out from the grave ; they bring it to all the houses of the village, and from thence to the place where are the bones of the persons who died before him. They hang the coffin between two trees, six or seven feet from the ground : when the string is rotten, the coffin falls, and the bones are partly eaten by the pigs. Should the dead be one of the captains, the corpse remains in the grave for three or four months. Some people in their best dress go to call relations and friends from the other villages to remove the bones ; the pigs of the largest size are killed, and singing, dancing, and particularly drinking, are kept up for several days. When a person dies, the villagers cannot go on that day to the jungle, fearing to be killed by the Hivie or spirit : they abstain also from the food to which the deceased was partial.

The Nicobarians give credit to dreams ; and are much addicted to superstition. They will not cross a jungle carrying any box, nor will they use nails in the construction of their houses. They never bathe alone ; nor will they go to the burial ground ; nor will they cut large trees in the forest, before offering to the spirit, who resides there ; nor will they eat at the same meal, pork and turtle. When in their boats, after drinking the water of young cocoanuts, they are very careful not to throw into the sea, the shells. Before they build a house, the Minloven is called to choose the spot, and by different ceremonies, he compels the Hivie to leave the place. When a new canoe is to be launched, a fire is lighted round it to compel the spirit to quit the boat. These people have the idea, that some have it in their power to cause a person's death merely by thinking of it ; and should a villager dream

that such a one is doing so, there is no other means to escape but by going immediately to another island. The greatest part of persons seen in islands where they are not born, have been compelled to leave their own on this account. If the dreamer mention his dream to no one but to the heads of the village, the sentence is passed, and the eaters of men, as the Nicobarian call them, are taken and fastened to a tree close to the village, leaving them to perish by hunger: no friend, no relative, would give them any thing to eat. Some years ago, a young woman of Teressa was starved on that account, and it was but on the seventh day that death put a stop to her sufferings.

The Nicobarians never use any thing taken from a vessel on which a murder has been committed, before the Minloven has, by prayers and supplications, purified the articles; being under the persuasion, that if they did not resort to such expedients, the spirit of the murdered person would inevitably kill them.

In Nicobar, every one is his own master, even children. Persons who have been in foreign countries, are respected, and have some authority over their countrymen. Such is the case also with aged people, and persons who have a great number of cocoanut trees and many pigs. But there is not a single person in all the Nicobars, who has it in his power to exercise controul over, I will not say one of the islands, but even a single village, should a person be guilty of a grievous offence, or of repeated thefts, he is compelled to leave the island. Some years ago, a person who had been sent out of Teressa for robbery, returned therceto; and as he was following again his old trade, he was stabbed to death by the order of the head people of the village. I think that such occurrences are very rare, as it appears that there is a general good understanding and union amongst them.

The prevailing food of the Nicobarians are pigs, poultry, turtle, fish, cocoanuts, yams, ika and fruits.

The pigs, which appear to be derived from the Chinese breed, being fed on cocoanuts, are very fat, and their flesh is of a superior flavour. Although they are to be found in every island, Teressa is the place where they abound. Some of the villagers of Laxis, have as many as sixty or seventy. They are let loose in the jungle; the owner calls them every day by striking on a plank with a stick; on their hearing the noise, they run instantly in the direction of the shed where the cocoanuts are

kept. After they have fared on the allowance, which consists of two cocoanuts for each, they return to the forest. Although there are many sheds to which the pigs are called in the same manner, those brutes, however, never mistake the place where they have to look for their food. This mode of living, gives to those animals the appearance of wild pigs. I saw some of the young ones variegated, reddish, and whitish. A large pig is sold for four or five rupees; but if cloth or knives are given in barter, then it may be had at half that amount. White pigs are very scarce. I saw two at Teressa, and the owners would not part with them on any account. Should the authors of culinary books require a new system for cooking meat, I will gratify them with a receipt on that *imvigor* in use amongst the Nicobarians. Having killed the pig, daub your face with its blood, cut the animal in pieces, put it on the fire for one or two minutes, until the hair is burned off, then take off instantly and eat.

The fowls are scarce, and if bought with silver, they give but two or three for a rupee; but the same number may be had for a common table knife, old or new.

Although there is plenty of fish about the islands, the natives having no nets, catch but very few. Their only mode of fishing is with a basket and harpoon. Great skill is displayed both by old and young in using this instrument; seldom missing their aim. A part of the fish caught is generally eaten raw on the spot, and the remainder is taken home to the family to be eaten in the same plain manner.

Different species of turtle are found at Nicobar; amongst them is the imbricated turtle which furnish the tortoise-shell: the flesh being unwholesome, cannot be eaten. But it is not the same with the green turtle, whose flesh supplies good food, and whose eggs are fine eating: they are particularly common at Car-Nicobar. The natives take advantage of the time when the turtle deposit their eggs in the sand during the night, they approach them slowly, and turning them on their *carapans*, they leave them in that position till next day, when they carry them home. These turtles, lay about one hundred eggs at a time.

The group of the Nicobar seems to be the land of cocoanut trees. I have never seen any country where they grow so well and in such abundance; the water of the young cocoanuts is superior in flavour to any I have tasted elsewhere. If Providence had not provided those

islands with these useful trees, I know not what would become of the inhabitants ; and I am sure, that the greatest punishment which could be inflicted on them, would be the cutting down of these trees, on which they mostly rely for their subsistence. Having no rice, the nut is its substitute ; and the cocoanut water is their general drink. Being very lazy, they never climb up the trees to get the ripe fruit, but let them fall of themselves, leaving them at the foot of the tree till they are wanted. The only thing which can induce them to climb up, is to get the young cocoanuts, in order to obtain the water to drink or the toddy, which, when fermented, is an intoxicating liquor ; there is no house without a supply of it, and the first thing that is offered to a visitor, is a cocoanut filled with that stuff. Men and women indiscriminately climb the trees, except at Chowry, where none but persons of the fair sex enjoy that privilege.

The Nicobar yams have a particular taste and flavour, which they lose in part when transplanted in other countries. Although very little trouble and care is necessary for their growth, yet the Nicobarians, through carelessness and indolence, allow themselves to be deprived of that wholesome root, during six months in the year.

The *eka*, or *ika*, or *milor*, as it is called by the Portuguese, is a fruit of the size and shape of the jack ; weighing from ten to fifteen pounds. It grows on a tree which is from twenty to thirty feet high, the trunk is *funili formis*, *foliis pinearis*. The fruit being boiled, the edible part is separated from the filaments with a shell, which, for greater convenience (the women alone perform that work) is held between the toes. This being done, they make it into loaves, weighing from ten to twelve pounds each ; it will keep for several months. When the natives take their meals, they cut a slice of it, which being mixed with the kernel of the cocoanut, affords them substantial food. This bread resembles much in taste and colour the sweet potatoe. These trees grow in all the Islands.

The fruits the most common are plantains, papayas, and jacks. I have seen some oranges and sweet lime, but of an inferior quality. There is scarcely any marked difference in the soil of the various islands of the group ; and therefore what grows in one of the islands would equally be found growing in the other. To certain islands, however, is allowed by natives the privilege of growing certain articles, which is

denied to the other : thus Nancowry is the only island in which paddy can be sown, &c. These restrictions extend not only to planters but affect also tradesmen : for instance, boats are to be built at Nancowry : earthen pots are to be manufactured at Chowry : lime is to be burnt at Car-Nicobar. The Islanders are obliged to have recourse to the above mentioned places for those articles. This practice seems to be the result of a rather sound policy, the object of which is to establish, and keep up an uninterrupted intercourse between the people of those various islands. Who would have suspected the Nicobarians capable of so wise a political institution !!!

The Great Nicobar is remarkable for the height of its hills, rising in succession, and covered with thick jungle. The inhabitants are few in number, and for their having an almost continuous intercourse with the Malays, some of them are tolerably acquainted with their language. The captain of the Steamer *Ganges* paid a visit to that island, and having anchored his vessel in the bay on the south-east side of the island, proceeded in his boat to survey the river as far as twenty miles up. The soil appeared to him to be very rich, particularly on the left side. He saw some deserted huts and a few plantations of cocoanuts. In some places the river was very wide, and he never found less than two fathoms of water. He reached a place where there was a fence, about two feet high. A shed was erected inside, but the inmates having, it appears, heard the noise of oars, had all fled : on the fire was *ika* half-boiled, not in earthen pots, as used by the Nicobarians, but in the broad and thick leaves which surround the betelnut, made in the shape of a pot. In the same enclosure were also pigs and fowls.

The interior of this island is inhabited by a race of people distinct from those of the Nicobars. It is said that this tribe is barbarous, and much inclined to warlike excursions to the great annoyance of their neighbours ; they are of a dark complexion, and have curled hair. It is a great pity that we know so little about a people, who having had hitherto no intercourse, nor the least communication with any other race, and being left to their own resources, could give us an idea of what man is when he has no other guide for his conduct, but the dictates of his vitiated nature. This tribe, with a dark complexion and curled hair, whether they are Papawans or Andamans, is a question

which no one could answer, except a person who had seen them both. Some persons have been brought from the Andamans to Penang, and no doubt has ever been entertained, but they are unquestionably of African extraction. I had occasion to see at Nancowry a man from Mozambique, who had seen several times persons from the Andamans, and who assured me that they were people belonging to the same race as himself. It is not to be supposed that the above mentioned person could have confounded two races so distinct as are the Africans and the Papawans. The hair of the last mentioned race grows in small tufts, each having a spiral twist. The forehead rises higher; the nose is more projecting from the face; the upper lip is longer; the lower projects forward from the lower jaw to such an extent, that the chin forms as it were no part of the face. This description given by Sir Everard Home, forms a striking mark of the dissimilarity between the two races.

The Little Nicobar has a beautiful anchorage; the Steamer *Ganges* anchored opposite to a sandy beach, close to Pulo Beloo, at a short distance from the sea-shore. There is between the hills a beautiful valley, irrigated by a small river running from the south to the north; at the mouth of that river is a cave, in which numbers of the *Collocalia fuciphaga* build their nests: the bottom of the cave is filled several feet deep with guano. Coal has been found towards the northern point of the island; but it appears that the product would not pay the expenses of working it. The hills, which cover the interior of the island, may be estimated from one thousand to twelve hundred feet high. The sea-slugs called *trepan*, which is such a delicacy for the Chinese, abound in the harbour.

The beauty of the harbour, the safety of the anchorage, and the fertility of the soil, induced the Danish Government to choose this island for their head-quarters. The Steamer *Ganges*, which was bought for the use of the new colony, went in December last to Penang, in order to procure coolies; of the forty Chinamen taken on board, a part of them were unfortunately opium smokers; the consequence was, that when the supply of that drug which they had brought from Penang, was exhausted, being unable to procure any at Nicobar, they had no strength to go on with their work: after lingering for sometime, they fell victims to the deadly effect of that most pernicious habit. The remainder of the Chinamen have been employed in clearing

a place for the stores, and making roads; they have planted samples of sugar-cane, coffee, nutmegs, &c. It appears that the luxuriant growth of these plants exceeds the planter's expectation.

I entertain very little doubt, that the Danes will finally succeed in colonizing the Nicobar Islands; but great patience is required, and much money is to be expended for clearing the land. The fever, which attacks the natives, and particularly foreigners trading thereto, especially when they sleep on shore, is to be no doubt attributed partly to the dense thick forest covering the ground. Of the four French Missionaries who lived at Teressa, one of them died of fever soon after his arrival; a second one, after having been laid up with the same disease for more than a year, breathed his last at Mergui. The two surviving are still lingering under the same complaint, although they have left Teressa almost two years since. The natives of Car-Nicobar, when attacked with fever, rub themselves all over before a fire with hogs' lard. I do not know how far this remedy, which affords relief to those Islanders, would succeed with foreigners.

Should the Danish Government wish to go on with the colony, the best plan in my humble opinion would be, to employ Malays or Siamese to clear the forest; they are the people most fit for that purpose; the Chinese are most certainly the best cultivators amongst the Asiatics, but not being accustomed to the clearing of jungle, their work in that line would not compensate for the high salary which they receive. They, being accustomed to live on a good and abundant food, would certainly prove a heavy burden on a new settlement, such as the Nicobar, where provisions are, with so great, a difficulty, to be had. The planters of Penang, having been annoyed by the importunities of the Chinese labourers, who are never satisfied with their present condition, have partly employed labourers from the Coromandel Coast; these coolies are a hard-working people, receive low wages, and are not impertinent towards their employers as the Chinese commonly are. It would be very easy for the Danish Government to procure labourers from the Coromandel Coast: rice and salt-fish being their food, they would be a lesser burden to the colony. Should Government take a couple of hundred Malays about the end of October, they would be able to cut down a considerable extent of the forest before the end of January: then their services might be dispensed with. In March or April fire could be set to the

wood, then fully dried up; this being done, the planting could commence. There is very little doubt, but the clearing of the jungle will put an effectual stop to the Nicobar fever. When the English took Arracan from the Burmese, that place was for some years called the grave of the troops; but the jungle having been cleared up to a considerable distance from the station, it is at present as healthy a place as any station in Bengal.

Province Wellesley, on the western coast of the Malayan Peninsula, was so unhealthy twenty years ago, that a European would not venture in the interior without being almost certain of catching the jungly fever; but the province having been in part cleared of jungle, it is considered by Europeans to be as healthy as Penang Island.

To colonize the Nicobars, a good manager is absolutely necessary, and much money must be expended at the commencement, and as all depends on the beginning, so the Government should be prepared to supply the settlement with means adequate to the undertaking. Should the establishment be properly managed at first, there is no doubt but the Malays and Chinese would go and settle there with their families, and cultivate the ground on their own account, as they do in English settlements; but on the contrary, were the Danish Government to go on slowly to the work, then the present settlement will be a failure, as was their first one at Nancowry. Nothing is to be expected from the natives; they are too lazy; they will never work except by compulsion.

The Nicobarians are averse to Europeans settling in their islands; this I heard from the most respectable of the Islanders, and but lately they gave a proof of it by making an attempt on the Government establishment. The natives being without courage, and not having among them a person who could succeed in forming them into one compact body and direct their united efforts, little fear is to be entertained about their future desultory attacks.

The sight of the south-west entrance to Nancowry harbour, affords a magnificent spectacle, and inspires the soul with emotion and pleasure. The passage which is about one hundred feet wide, has on each side a bare and rugged rock, having in the centre an opening much resembling the side gates of a citadel; these rocks lie adjacent to the hills rising from two to three hundred feet above the level of the sea, and are covered with a fine and ever-green vegetation; on entering the harbour,

which appears as a large basin, the eye meets with some hamlets surrounded by cocoanut and betelnut trees; many of the houses are built like the Malay huts, and some have the shape of bee-hives. The whole circumference of the harbour is lined with hills varying in shape, size, and height: some rising in the form of inclined planes, some towering perpendicularly; and some having several escarpments; these hills, from four to five hundred feet high, are covered with luxuriant vegetation. In vain the eye seeks for cultivated ground to embellish the scenery; nothing is to be seen but the savage grandeur of a vigorous vegetation, which characterises this part of the world. The harbour communicates with the sea by another entrance towards the east, which is the general passage for vessels to get in: there stands a village called Malaca; when vessels anchor close to it, both of the passages may be seen.

The inhabitants of this village, which has ten or twelve houses, are far from making a favourable impression on the visitor. By their features the Nancowry people resemble the Malays so much, that they appear to have some of the Malay blood in their veins; and there is no doubt, that if they rightly deserve to be considered as the wickedest amongst all the inhabitants of the group, it is owing chiefly to their frequent intercourse with the Malays. Some days previous to my arrival at Malaca, a young East Indian, William Goldsmith, who had resided there several years, died in that village. On enquiring about the particulars of his death, I was far from being satisfied with their contradictory, and on all respects, unsatisfactory answers. This young man must have known a great deal about the doings of the natives: it is not therefore improbable that his death had been hastened by the suspicious Islanders who feared he might make known their mischievous deeds. • In the same village an African Christian, named John, who speaks tolerable Portuguese, and was employed as gunner by the Danes when they were in that island, came on board dressed with a miserable rag which the natives wear around their loins, he had for a neckcloth a fine pantaloons, which he received a few days before from one of the Danish officers. I put several questions to him concerning the inhabitants, but in vain; he only told me that the natives were very good, with the exception of the inhabitants of the False harbour. •

The first Danish settlement was at Karmorta, opposite to the village of Malaca; the remains of a few brick houses may be seen still on a

rising ground. I do not think that the spot was well chosen for an European settlement, the harbour being surrounded on every side by hills with the exception of the two entrances. This site must have proved unhealthy to the settlers; the low ground is very sandy, and the soil appears to be inferior to that of Nicobar.

Teressa Island appears to be ill adapted to be the head-quarters of a colony; the south of the island being an open place without a harbour, is too much exposed to be a safe anchorage, the surf is tremendous, and the only place for landing, is a small passage amongst sweeps. The breakers in the NE. monsoon are also terrific. The northern part of the island is partly protected by Bombaka, a small island, distant two miles from Teressa, the hills of which rise suddenly from the beach; but that side being exposed to an easterly gale, the anchorage is not safe. The low ground of Teressa is very sandy, and although the hills are composed of red clay, they are covered in part by a coarse grass called *Lalan*, and the vegetation does not appear to be so strong as in some other islands. *Lackshee* is the largest village in the island: it is situated towards the south, and contains seventeen huts, numbering one hundred and four persons. It is in that village that the French Missionaries dwelt, living in a native hut. The Islanders would not allow them to build a house, although they had brought the materials from Penang; being under the ridiculous impression, that if a house were built different from theirs, they would all inevitably die. The Car-Nicobarians have not those prejudices, having allowed the Missionaries to build a house in 1836 in any shape they thought proper.

The Missionaries entertained at first great hopes of converting the natives; the Islanders visited their houses frequently, and though they did not appear to take much interest in their instructions, it was thought that this might be attributed rather to the unsteadiness of their character than to any determined aversion to their becoming Christians.

The priests on becoming better acquainted with their character, found that the trifles they had brought with them to the Nicobars, were partly the cause of the seeming affection shewn to them at the beginning. A school was opened by the Missionaries; as children do what they please, and parents having no controul over them, the school was attended only by a few, and that for a very short time, so that not a single boy could derive any benefit from it.

The Jesuits, about two hundred years ago, were the first who brought to those Islanders, the light of the Gospel: their exertions were crowned with success at Car-Nicobar, but these Missionaries being anxious to give the same benefit to the other islands, went thither on that purpose. Their zeal was rewarded with the crown of martyrdom. The neophytes being left to themselves, fell again into their former paganism.

In the beginning of this century, an Italian clergyman was sent from Rangoon to Car-Nicobar, his zeal, charity, and simplicity of manner in his living, gained him the hearts of the natives; several of them were baptized; and there is very little doubt, that the whole island would have been converted, had he not caught the fever, in consequence of which, he had to return to Rangoon, where he died shortly after his arrival.

In 1835, two French clergymen were sent by the Bishop of the Straits to the same island. The natives were shy at first, but after a few days of intercourse, they shewed a more friendly disposition, and allowed them to build a house. The Missionaries found that their frequent communication with foreigners was far from having improved their manners. They were no more that simple, innocent, and harmless people as they were formerly represented to be. When the natives became more acquainted with the missionaries, they paid them frequent visits; bringing with them trifling presents, such as yams, fowls, &c., some of them being anxious to learn the Christian religion, went every evening to their house to be instructed: after a few months' residence there, the priest had gained so much the affection of the people, that their house was crowded every day; and they were permitted to visit all the parts of the island without excepting even their inland establishments, where they keep their most valuable articles: a privilege which had never hitherto been granted to any foreigner. Every thing went on prosperously, until the arrival of a Cholia vessel, whose *Nakodā*, by misrepresenting the character of the priests, withdrew from them the confidence of the natives. He told them, that the Missionaries were English spies sent there, for the purpose of enquiring into the produce of the country, and that in consequence of the information furnished by them, that Government would soon take possession of their islands. The Nicobarians having given credit to this tale, would hold no more communication with them nor sell them any provisions: two of the natives who

continued faithful to the Missionaries, told them that the people were so exasperated against them on account of these false reports, that if they remained any longer, there was no doubt, but they would become victims to their rage. As the Missionaries could not succeed in convincing the Islanders of the untruth of the report, and seeing that any further stay among them was useless, they quitted the place, having remained in the island about a year. It is impossible to form an adequate idea of the hardships which the Missionaries underwent during their stay in the Nicobar Island. They were deprived of every comfort of life ; their food frequently consisted of nothing but cocoanuts and yams. The Rev. Mr. Lacrampe, who spent the SW. monsoon at Chowry, had no rice to eat during his stay ; and had it not been for a native who brought him one yam every other day, and which he was obliged to share with a servant boy, he would have starved. This gentleman being attacked with fever, cocoanut-water was the only drink he could procure to quench his burning thirst. The Rev. Messrs. Chopard and Borie, soon after their arrival, were taken ill at Teressa, and so seriously, that they could not render each other assistance : both were lying on mats in the same place, without remedy, and receiving no assistance from the natives, but the hand of Him who had guided their steps in that foreign land, supported them amidst such trying afflictions. At last Mr. Borie, though of a strong constitution, fell a victim to repeated attacks of fever. On that very day, in the evening, Revd. Mr. Chopard was so very ill, that he was not at first aware of the death of his companion. On the following morning, having recovered his senses, he then only found that his friend was but a corpse lying by his side. On the same evening the natives removed the mortal remains to the grave they had prepared : and he, though scarcely able to creep along, attended the funeral. A worldly-minded person might mistake this pure zeal of the missionaries for blind fanaticism ; but their conduct cannot but be admired and praised, when we consider and reflect on the fact, that these missionaries were led by no possible earthly motives, but guided solely by the earnest desire of making known the saving truths of the Gospel to their fellow-creatures. Nothing but a belief grounded on the strongest evidence, and deeply rooted in their souls would have led them to the field of their labours, and supported them through the severest trials.

Chowry Island, seen from the east, presents a rugged and abrupt rock, resembling the walls of a citadel or old castle. The other part of the island is flat. Although cocoanut trees grow well there, the quantity is not sufficient for the support of the inhabitants; in consequence of which, many are obliged to proceed to other islands. The emigrants being generally men, it follows, that the female sex are more numerous; I suppose this is the cause why the privilege of having several wives is allowed in that island. No fresh water is to be had at Chowry; the inhabitants therefore have no other drink but cocoanut-water. Vessels or boats touch seldom at Chowry, because there is no safe place of anchorage; in consequence of which the natives are the poorest among the Nicobarians; and when they have to buy or sell any articles, they go to the other islands where the vessels are lying.

In all the group of the Nicobars are found, more or less, birds' nests, trepan, ambergris, and tortoise-shells. The first vessel that touches there, when the SW. monsoon is over, might make good bargains with the natives, provided the purchasers be well acquainted with the quality of the articles brought to them.

The *Collocalia fuciphaga* is smaller than the common Swallow, brown above, and whitish below. The nest is a whitish gelatinous substance, arranged in layers and secreted by the salivary glands of that species of Swift. These birds, common in the Archipelago of Mergui, the Nicobars, &c. build their nests in the cavity of the rocks, where it is most difficult and perilous to have access. The nests are of six qualities; the first, of a fine whitish colour, is obtained by taking the nest before the Swift has layed its eggs. This quality is sold at Penang from forty to fifty dollars the katee. The second quality of a brownish colour, is obtained by taking the nest when the bird has layed her eggs. It is sold at Penang at from twenty to thirty dollars the katee. The third quality is of a dark colour, mixed with blood and feathers, it is obtained by taking the nest when the young birds have flown; the price of this sort is very low. The Chinese say, that when the nest is taken before it is completed, the Swift makes another but of an inferior quality: and it appears that the bird exhausts itself in building the second; the next being spotted with blood. The manner in which the Chinese prepare the nest is to steep it in water during one night; then with great trouble they clean it; this being done, they boil it in water to which

they have added some sugarcandy, till the whole forms a jelly: one nest prepared in this manner, is sufficient for one person.

Birds' nests being very dear, the wealthy Chinamen only can enjoy this delicacy. The rich opium smokers take in the morning a cup of it, for the purpose of refreshing and strengthening their debilitated frames. Persons attacked by consumption, are advised by the Chinese physicians to take these nests; they prescribe the same to those who are reduced by a protracted illness; and I have seen several persons, who, having made use of this remedy, declared that they found a temporary relief from this refreshing and nourishing food.

Formerly, both Malays and Burmese, procured at the Andamans a considerable quantity of these nests: collecting them themselves, or receiving them from the Islanders in exchange for their tobacco, &c. I was told by an old Caffrey, who is still living, that when young he had been several times at the Andamans; that the inhabitants were then a harmless people; that they brought on board, trepan, birds' nests, &c.; taking in exchange several articles. The above person attributed the change in their manners to the misconduct of some Malays and Burmese, who taking advantage of the time in which the natives were on board their vessels, tied them up and carried them off as slaves. It is a fact, that several persons at different times have been brought to Rangoon as well as to Penang. How could it be expected that the natives after such treatment, would keep the least intercourse with foreigners. At present their antipathy to strangers has risen to such a degree, that it is most dangerous to approach their shores. It is said, that the Andaman people are Cannibals; but the assertion is hitherto destitute of unquestionable proof: and it would appear rather strange, that a people, who are reported to have been harmless forty or fifty years ago, could have fallen into such a state of barbarism in so short a time: be that as it may, it is certain, that peaceful persons who have called to their island, to procure a supply of water, have been murdered by the natives without provocation.

Ambergris is found in all the group of the Nicobars; and some years in such quantities, that this article is scarcely of any value in these islands. In the various islands I visited, the natives brought me ambergris for sale: but its having been mixed with the wax of a small bee, which establishes itself in the trunk of decayed trees, it was of a very inferior

quality. The genuine amber is sold very dear at Penang. The Chinese and Burmese use it for medicinal purposes.

The trepan, or bichoo-de-mar, is a leech-like animal, from fifteen to twenty inches long, to four or five inches broad. Some are of a reddish-brown, and some of a dark-brown colour. These animals lay in the sand or coral rocks, without shewing any appearance of animation. The Malays have two ways to catch them; first by spearing, and second when the water is not too deep, by diving and taking them with their hands. The Malays are, I think, the only people who prepare the trepan. They start for the Nicobar Islands in November and December, and remain there till the end of April. The way of preparing these leeches for the market, is to boil and dry them in the sun or at the fire: they are then packed up with lime, brought to Penang, and sold to the Chinamen, who are the only people, I think, fond of that *delicacy*. The price varies according to the quality; some trepans are sold at the rate of thirty dollars per pecul, some at a lower price. The Chinese alone have the skill to find out a difference between the various kinds of trepans. A Malay boat made last year, fifteen hundred dollars by merely collecting trepans.

Having been in the different islands for a short period of time only, I could not ascertain what are the different species of trees growing there, but judging by those I saw, I think they are, with a few exceptions, of the same species as those growing at Penang; the dammer tree particularly, is very common. The overseer employed by the Danes at Little Nicobar, says, that teak is found on the island, but I am inclined to believe that it is a mistake.

The soil on the sea-shore of the Nicobars is sand, coral, lime, and vegetable mould, more or less thick. The hills are red clay, as the Penang hills: the rocks are limestone, sandstone, clay and slate. As rain seldom falls in the months of December, January, February, and March, I do not know how far the plantation of spices would succeed.

When at Nicobar, I collected different species of birds which were sent to the Calcutta museum. I saw at Katchall and at Little Nicobar monkeys of the species *Macacus cynomolgus*. The natives told me that several species of snakes were found in the islands, some being very venomous. The *boa constrictor* is found also in the islands, particularly at Teressa.

The shells which I collected were the following : ammonites virginea, conus generalis, cypræa, exenthama, cassidaria chiasphora, ceritheum, murx tenuispina, pteroceras scorpio, anodon dipsus, cardita caliculata.

Before concluding this notice, I beg to return my most sincere thanks to Captain R. Ashland, commanding the Danish Steamer *Ganges*, for having afforded me, with the utmost kindness, the means of visiting several of the islands above-mentioned, as also for the unceasing kindness shewed to me when on board of his vessel, both by him and his officers. I was seventeen days in the group, and I am indebted for the foregoing detailed accounts, partly to the natives themselves, but chiefly to the Reverend Mr. Lacrampe, who accompanied me to the Nicobar Islands. As this clergyman had previously resided for more than one year on these islands, and was tolerably well acquainted with the language of the natives, I have unhesitatingly relied on the information he so readily gave me.

It is as well to add, that in mentioning the harbours, their entrance, &c., I may have mistaken with regard to their exact position, but I beg the reader to bear in mind, that I am not a seaman, and therefore no one can expect from me that exactness in such matters, which can be furnished but by persons brought up to that profession, and who are supplied with the requisite instruments.

SMALL VOCABULARY OF THE NANCOWRY LANGUAGE.

Man,	Inconhay.	Chin,	Inknan.
Young man,	Maial.	Beard,	Boyalkiah
Woman,	Ungcan.	Neck,	Kolalah.
Girl,	"Uiah,	Belly,	Uhian.
Wife,	Incam.	Hand,	Kanathoi.
Head,	Koi.	Thigh,	Bhoolo.
Hair,	Inkoi.	Leg,	Anhnan.
Ear,	Nan.	Foot,	Huphala.
Nose,	Moi.	Sea,	Kahmala.
Forehead,	Lail.	Water,	Rak.
Eyes,	Olmat.	Rice,	Aroos.
Lips,	Mahnöey.	Cocanut,	Gnhuat.
Teeth,	Kanap.	Ambergris,	Kampeci.
Tongue,	Kealatat.	Birds' nest,	Akai.

Moon,	Khaha.	Eat,	Hookgnok.
Sun,	Han.	Drink,	Phim.
Star,	Lomalay.	Go,	Ahochoo.
House,	Hnec.	Come,	Kathara.
Fire,	Hahoha.		
1. Hing.	4. Fuan.	7. Hakiat.	10. Lam.
2. Hahoo.	5. Thanin.	8. Infuan.	20. Hingian.
3. Looha.	6. Thafool.	9. Inhatta.	30. Loohagian.

Notes on the Fauna of the Nicobar Islands. By E. BLYTH, Curator of the Museum of the Asiatic Society.

The Vertebrated Fauna of the Nicobars, to judge from the collection with which Mr. Barbe has favoured the Society, and also from a nearly parallel series of specimens collected and presented to the Society by Capt. Lewis, would seem to be remarkable for the paucity of terrene species; while a large proportion of such as do occur are apparently peculiar to the locality.

MAMMALIA.

Of this class, I have examined four species only, of which three are Bats.

Macacus cynomolgus: which is also an inhabitant of the Tenasserim Provinces and Malayan peninsula, but in Arracan is represented by the allied *M. carbonarius*. I have been presented with two living specimens from the Island of Timor, which do not appear to differ from those of Malacca; the species being everywhere subject to some individual variation.

Pteropus edulis: *Pt. javanicus*, Horsf., &c. &c. Three specimens are alike remarkable for having the throat and front of the neck black, the head blackish, the nape dull reddish-brown, the back shining black, flanks and vent dull black, and the rest of the under-parts dull reddish-brown, much paler in the centre.

* *Cynopterus marginatus*, (B. Ham.) Inhabits India generally, as also the countries eastward of the Bay of Bengal to Malacca, and the great eastern archipelago.

Hipposideros murinus, (Elliot): vide *J. A. S.* XIII, 489. Identical with specimens from Southern India, and from the Malayan peninsula.

In addition to the above, Capt. Lewis informed me of a large Monkey, evidently a *Presbytis* (vel *Semnopithecus*) from his description, of which he vainly attempted to obtain specimens, from its remarkable wildness; also of a large Squirrel, distinct from any in the Society's Museum, and therefore probably new, considering the locality.

Capt. Lewis likewise obtained, in the immediate vicinity of the Nicobars, an example of *Delphinorhynchus rostratus*, F. Cuv., as identified from its skull which he has presented to the Society, and which entirely accords with that of a specimen captured in the Red Sea.

Sus — The Nicobarian Pigs appear to have been derived from the Chinese domestic species, turned loose upon some of the islands.*

It can scarcely be doubted, however, that several additional species of mammalia remain to be discovered, as particularly Bats, with probably more Squirrels, and at least two or three species of small *Carnivora*, and perhaps *Insectivora*.

AVES.

Palacornis caniceps, nobis, ante pp. 23, 51. Capt. Lewis obtained a living specimen of this bird, with the wings and tail mutilated by its native captor. Dr. Cantor has another and very fine specimen, evidently a female, with black beak, from the Malayan peninsula.

P. erythrogenys, nobis, ante p. 23. Specimens of this bird were procured both by Mr. Barbe and by Capt. Lewis; and a living male was given by the latter gentleman to Mr. Halfhyde, of the Preventive service, who, when it died, presented it to the Society. This individual was in far more beautiful plumage than the specimens previously examined: it measured eighteen inches and a half in length, of which the middle tail-feathers were ten and a half; expanse of wings twenty-two inches and a half; and closed wing seven inches and five-eighths: irides dull greyish. The cheeks and ear-coverts, continued forward to the beak,

* It may be here remarked, that Capt. Lewis has himself turned a pair of *Cervus axis* loose, in a locality where they are likely to propagate.

are of a beautifully bright cherry-red, devoid of the lake or "peach-blossom" tinge prevailing on the same parts of *P. malaccensis*, and which, in the latter species, is continued round the nape: the crown also is not of the deep emerald-green of that of *P. malaccensis*; the occiput and nape incline to light straw-yellow; and there is a well defined black line from the nostril to the eye: all which combine with its superior size, and other minutiae that might be pointed out, as the absence of red above the ear-coverts, to distinguish it from *P. malaccensis*. Indeed, it holds much the same relationship towards that species, which *P. Alexandri* does towards *P. torquatus*; and *P. caniceps* stands in the same position towards *P. pondicerianus*; *P. schisticeps*, also, towards *P. cyanocephalus*.—*P. erythrogenys*, so far as we are yet aware, is peculiar to the Nicobar Islands, where it occurs abundantly.

Bulaca seloputo, (Horsfield): *Strix pagodarum*, Tem. Capt. Lewis informed me of a very beautiful Owl which he obtained, but the specimen was lost through the carelessness of a servant: he could not recognise the species among the fine collection of Owls in the Society's Museum, but identified it positively from a Malayan specimen belonging to Dr. Cantor. The present species has been much confounded with its Indian representative; which latter has been referred, not very satisfactorily, to *Strix sinensis*, Lath. A very large white Eagle was also shot by Capt. Lewis, but he could not succeed in penetrating the very dense jungle into which it fell: this was probably *Blagrus dimidiatus*, (Raffles.)

Todiramphus occipitalis, nobis, ante pp. 23, 51. Peculiar, so far as has been yet observed, to the Nicobars.

T. collaris, (Scopoli and Swainson): *Alcedo chlorocephala*, Gmelin. Nicobarian specimens of this bird are remarkably brilliant, with much less of the green tinge than usual upon the crown and back.

Merops philippinensis. Found also throughout India, and in the Malayan peninsula and archipelago.

Collocalia fuciphaga, (Thunberg), vide p. 22, ante.

Gracula javanensis, vide p. 31, ante. Inhabits the southern Islands only.

Sturnia erythropygia, nobis, ante p. 34. Hitherto observed only upon the Islands.

Calornis affinis, A. Hay, ante p. 36. Upon the average, this bird is less brightly glossed than *C. cantor*, of the Malayan peninsula and archi-

pelago. It was observed by Capt. Lewis in the central and southern Islands.

Nectarinia pectoralis, Horsfield : *N. eximia*, Temminck (nec Horsfield). Inhabits also the Malayan peninsula and Java, but in the Tenasserim provinces and in Arracan is represented by the allied *N. flammaxillaris*, nobis.

Zosterops palpebrosus, (Tem) : *Sylvia annulosa*, var. A. Swainson. This species inhabits the hilly parts of India, from the Himalaya to Ceylon inclusive, and also those of Arracan and Tenasserim : but I have never seen it from the Malayan peninsula, and it is represented in Java and the Philippines by *Z. flavus*, the *Dicaeum flavum*, Horsfield. The specimen described as *Z. nicobaricus*, J. A. S. XIV, 563, would seem to be merely the young ; though I have never seen an Indian specimen in corresponding plumage. The Society has, however, subsequently received Nicobarian specimens in the ordinary dress of *Z. palpebrosus*.

Oriolus macrourus, nobis, ante p. 46. A very distinct species, observed only in the central Islands. I may here remark, that since my Synopsis of this genus was written (*loc. cit.*), I have discovered that females of *O. melanocephalus* very commonly assume the plumage which is generally thought to be characteristic of the adult male ; and I greatly suspect that the same obtains in the various other species of Oriole.

Hypsipetes virescens, nobis, vide p. 51, ante. Inhabits the central Islands.

Geocichla innotata, nobis, MS. (described in the sequel to my 'Notices and Descriptions of New Birds'). Both Mr. Barbe and Capt. Lewis procured what I infer to be a female of this well marked species ; and Dr. Cantor's Malayan collection contains what I incline to regard as the male. The colouring is considerably more intense than in *G. citrina*, and there is no white upon the wing-coverts ; the presumed female only has a white throat, and the scapularies and interscapularies are olivaceous.

Dicrurus balicassius, (Lin.) A specimen of this common Malayan species was obtained at sea, by Capt. Lewis, when nearing one of the Islands.

Tchitrea — ? A species of Paradise Flycatcher, or *Shah Bulboul* of the natives of India, was observed but not obtained by Capt. Lewis.

Myiagra caerulea, (Vieillot). Common.

Treron chloroptera, nobis, XIV, 853. A very distinct species, hitherto only observed upon the southern Islands.

Carpophaga sylvatica, (Tickell). Nicobarian specimens seem invariably to differ from those obtained throughout the eastern coast of the Bay of Bengal (from Arracan to the Straits), and also from Java, Sylhet, Assam, &c., all of which are quite similar, in the green of the upper-parts being wholly unmixed with bronze, and the ash-grey of the head, neck, and under-parts having no tinge whatever of vinaceous; the primaries also are devoid of the grey tinge; and the lower tail-coverts are much less deeply tintured with dark vinaceous. Hence the *ensemble*, when several specimens of each are examined together, is conspicuously different. This species occurs in the central group of Islands.

C. myristicivora, (Scopoli): *Columba alba*, Gm.: *C. littoralis*, Tem. Both this and the preceding species are very common.

Calenas nicobarica. Found also in the Andaman and Cocos Isles, in the Mergui archipelago (according to Helfer), and in the Malayan peninsula. Two young ones procured by Capt. Lewis have the tail greenglossed black, whereas in adults the tail is pure white. The elongated nuchal hackles do not exist in the garb of juvenility.

Chalcophaps indicus. This differs from the Indian race in the deeper ash-colour of the nape, and bluer vinaceous hue of the under-parts; while the bands on the rump (so conspicuous in the Indian bird, and also in its Australian near ally, *Ch. chrysochloros*,) are very indistinct. It abounds in the central Islands.

Macropygia rufipennis, nobis, n. s. Most closely allied to *M. phasianella* of Australia, but rather smaller in all its proportions, and best distinguished by the uniform bright rufous hue of the entire under-surface of the wings, which occupies the whole of each feather except towards its tip. The primaries are also externally somewhat broadly margined with the same. There is really no other difference: but another species, *M. amboinensis*, of Java and the Moluccas, differs only from *M. phasianella* in its much inferior size. Specimens of all three are in the Society's Museum, and there can be no doubt of their distinctness. I have also a living specimen of *M. phasianella*, caught at sea about sixty miles from the Australian coast. It is kept in an aviary with a variety of other birds, and prefers plantain to any other food: so eager is it for this fruit, that of a morning it will alight on a bunch of plantains as the latter is carried into the aviary, and when the

plantains are hung up, it combats with the different species of Hurrials (*Treron*) and other birds, in a singular manner, to obtain undisturbed possession of the fruit. Its manner is to hover round them, and not exactly to strike with its feet, but to push with them the intruder off its perch, and this it will sometimes repeat two or three times in succession without alighting. It never descends to the ground, except to feed on fruit that may be lying there; yet, though so fond of this aliment, it was fed, when on board-ship, exclusively on maize, and in default of fruit will thrive on rice and other grain. This bird is chiefly active in the morning and evening, and scarcely moves from its perch during the day. Its coo is hoarse, deep, and subdued, a sort of croaking sound, only audible when very near, and resembling 'o-o-o-o-ah' repeated several times successively.* *M. rufipennis* was observed only in the Southern Nicobars.

Turtur suratensis, (Lath) : *Columba tigrina*, Temminck. Common to India and the Malayan peninsula and archipelago.

Megapodius nicobariensis, nobis, ante p. 52. Of this very interesting bird, Capt. Lewis obtained the egg and chick, and Mr. Barbe an adult pair, with also two eggs, which latter are noticed in my description of the species. That procured by Capt. Lewis was uniformly tinged with reddish-brown, which still further bears out Mr. Gould's description of *M. tumulus* of Northern Australia, the eggs of which he describes to vary somewhat in hue, according to the soil in which they are deposited.†

Demigretta concolor, nobis, n. s. This Demi-Egret was long ago forwarded from Arracan by Captains Phayre and Abbott, and I am assured that it also occurs in Assam. In the central Nicobars it would seem to be not uncommon. From *D. asha*, (Sykes,) it is readily distinguished by its shorter legs; the tarse measuring but three inches instead of three and three-quarters: wing eleven inches, or eleven and a half, in adults; about an inch shorter in the young: bill to forehead three inches and a half, and to gape four and a quarter: middle toe and

* This bird is since dead; its plantain diet by no means agreeing with it so well as the maize on which it was kept formerly. As for its mode of fighting, I lately saw a pair of Doves (*Turtur suratensis*) on the ground, which repeatedly flew up and attacked each other much in the same way.

† Mr. Barbe informs me that this bird is common on all the Islands; but that he never saw it perch, as Mr. Gould represents *M. tumulus* to do, in the back-ground of his plate. The pair he shot were together, upon a hillock, and upon his shooting one, the other did not make off, upon which he killed it with his second barrel.

claws two inches and three eighths, the claws short and much curved. Colour uniform dark slaty throughout; some specimens having a white line on the chin and throat. Adults have narrow lengthened plumes on the back and breast, similar to those of *Ardea cinerea*: the occipital plumes also are somewhat lengthened, as in Herons generally; but I have seen no defined occipital crest, and doubt its ever possessing one. Beak mingled dusky and dull yellowish; and the legs appear to have been olive-green.

Nycticorax griseus, (Lin.): *Ardea nycticorax*, L.

Streptilas interpres, (Lin.) Common along the coasts of the Bay of Bengal; and the Society has received a specimen from the Mauritius. One of the most universally distributed of birds.

Totanus hypoleucos, (Lin.) Excessively numerous in the Bengal Soonderbuns; and the Society has also received it from Chusan. Of very general distribution throughout Europe and Asia.

Thalasseus bengalensis, (Lesson). Nearly allied to *Sterna velox* and *St. affinis* of Ruppell (nec *St. affinis*, Horsf.), to which it would seem intermediate. *St. cristata*, Sw. (nec Stephens), is also closely allied, but remarkable for its very pale colour. From the European *Th. Boysii*, (Pen.), which it also greatly resembles, this species differs in having the bill wholly yellow, and the tail uniform grey with the back. Another allied species, which was procured by the late Dr. Helfer in the Tenasserim Provinces, agrees with the description of *Sterna poliocerca*, Gould, and is perhaps the *St. cristata* of Stephens. *Th. bengalensis* is not uncommon in the Bay of Bengal.

Sterna (?) *melanauchen*, Tem.: figured in Gould's 'Birds of Australia.' This species breeds abundantly in the Nicobars.

Another species common in the Bay, is the *Melanosterna anasthætus*, (Scopoli), v. *Sterna panaya*, Lath., *St. infuscata*, Licht., and *St. antarctica*, Lesson: and allied to this is a species which is perhaps *St. grisea* of Horsfield, and which was obtained by Prof. Behn, of the Danish expedition, as he was approaching the mouth of the Hoogly. If new, I am enabled by the politeness of that naturalist to subjoin the accompanying description of it.* *Anous tenuirostris*, (Tem.), is also a

* *Hydrochledon grisea* (? Horsfield): n. s. ? *H. marginata*, nobis. Resembles *H. nigra* in winter plumage, except in being much larger, and in having the nape (surrounding the black of the occiput) pure silky white, as are also the entire under-

marine species of Tern, which I have obtained in the Bengal Soonderbuns.*

Phaëton æthereus. The only Tropic-bird, (or "Bo'sw'n-bird,") I have seen from the Bay of Bengal. *Ph. candidus* abounds near the Mauritius, and *Ph. phænicurus* towards Australia.

Pelicanus philippensis. The smaller Indian Pelican, which seems to be the predominating species throughout the Malay countries.

It thus appears, that of thirty-two ascertained species of birds, procured either upon, or in the immediate vicinity of the Islands, (which number includes *Bulaca seloputo*, *Dicrurus balicassius*, and *Phaëton æthereus*,) as many as eight are peculiar to the locality,—so far, of course, as has been hitherto ascertained; for it is likely that most of them inhabit also the northern part of Sumatra, and perhaps the Andamans, and the province of Mergui and its vicinity. These eight comprise several remarkable and conspicuous species, and are as follow:—*Palæornis erythrognys*, *Todiramphus occipitalis*, *Sturnia erythropygia*, *Oriolus macrourus*, *Hypsipetes virescens*, *Treron chloroptera*, *Macropygia rufipennis*, and *Megapodius nicobariensis*.

parts, including the sides of the breast: the mantle is also much paler, and the tail more deeply forked and differently coloured. Length, to end of middle tail-feathers, ten inches and a half, or to the outermost a foot; wing nine inches and a half; middle tail-feathers two and three-quarters; bill to gape one and seven-eighths; tarsus three-quarters; middle toe and claw an inch; the webs of the toes more developed than in *H. nigra*. Bill reddish-dusky, redder towards base of lower mandible; the interior of the mouth apparently coral-orange; and legs, toes, and membranes, the same, with black claws. Colour above pale ashy, with sullied whitish margins to the scapularies and wing-coverts; a defined blackish band, half an inch broad, extends along the outside of the radius, bordering the upper-part of the wing anteriorly, as in the winter dress of *H. nigra*: crown and occiput black, embracing the orbital region; towards the forehead the feathers become gradually more deeply margined with white, and the forehead and entire under-parts are pure white, extending on the nape: the great alars are silvery-ash externally, except the first, which has its outer web, and half the breadth of its inner web, with the tip, black, tinged with ashy towards the tip and on the inner web; the extent of the dark ashy tip increases successively on the other primaries, the shorter of which have a narrow white border to their inner webs; while the secondaries are tipped externally with the same: the lesser coverts of the primaries, with the winglet, are mostly dusky: middle tail-feathers pale grey, with a whitish tip; the rest white on their inner webs, and successively darker till they become blackish on the outer: underneath the wings and tail appear margined externally with blackish-grey.

* The Society's specimen of this bird is not a very good one; and I can distinguish it neither from *A. melanops* nor *A. leucocapillus*, figured in Gould's 'Birds of Australia.'

Four others exist as varieties, more or less marked, of species met with elsewhere : viz. *Todiramphus collaris*, *Collocalia fuciphaga*, *Carpophaga sylvatica*, and *Chalcophaps indicus*.

Of those which are not peculiar to the Islands, twenty-one are known to occur in the Malayan peninsula (including *Palæornis caniceps* and *Geocichla innotata*, which were discovered in the two localities about simultaneously) ; and the remaining three inhabit Arracan, and probably Tenasserim—certainly as regards *Zosterops palpebrosus*, the others being *Calornis affinis*,* and *Demigretta concolor*. It is probable, indeed, that the whole twenty-four occur in the Malayan peninsula, with also some of the remaining eight, which appear to have been hitherto observed only on the Islands.

Of the species found likewise in India, the majority are more or less aquatic, belonging chiefly to the Zoology of the Bay and its vicinity : such is *Todiramphus collaris*, which abounds in the Bengal Soonderbuns, and along the whole eastern shore of the Bay, but is very rare on the Coromandel coast of the peninsula : but *Merops philippinensis*, *Zosterops palpebrosus*, *Myiagra cærulea*, *Chalcophaps indicus* (Ind. var.), *Turtur suratensis*, and even *Carpophaga sylvatica*,† are inland species, which are pretty generally diffused—though the last is much more common in the countries eastward (as Assam, Sylhet, Arracan, and Tenasserim). *Dicrurus balicassius* I have only seen from Nepal, it being the *Buchanga annectans* of Mr. Hodgson : and the remaining species included in the *Fauna Indica* are *Nycticorax griseus*, *Strepsilas interpres*, *Totanus hypoleucos*, *Thalasseus bengalensis*, *Phaëton æthereus*, and *Pelicanus philippensis*.

Hence, the data supplied by the highly interesting Ornithology of the Nicobars, (so far as we have yet the means of judging,) connect those islands with the Malayan Zoological province, as their position on the map would indicate : at the same time that they possess several peculiar and remarkable species, not hitherto discovered on the neighbouring lands.

* I have unfortunately retained for the Museum no Tenasserim specimens of *Calornis*, not having suspected the distinctness of *C. affinis* from *C. cantor*, until Lord A. Hay called my attention to the fact. *C. cantor* is common at Penang : and I may add that Mr. Barbe has just assured me that the Tenasserim species is *C. cantor*, and not *C. affinis*.

† The very small specimen mentioned in XIV, 857, proves to have been from the Neilgherries ; but whether the race of Southern India is constantly thus diminutive, I am not yet aware.

REPTILIA.

My materials for illustrating this class are rather scanty, although it would appear that the Nicobars possess many species, more especially of *Ophidia*.

Of the *Testudinata*, Mr. Barbe mentions two, recognizable portions of both of which were brought by Capt. Lewis : viz.—

Chelonia virgata ; the edible 'Turtle of the Bay of Bengal : and

Ch. imbricata ; the " Tortoise-shell " Turtle.

Of the *Sauria*, Capt. Lewis collected four species :

Monitor salvator, (Laurent) : *Tupinambis bivittatus*, Kuhl ; *Varanus bivittatus*, Dumeril and Bibron, *Hist. des Reptiles*, III, 486.

M. nebulosus, Gray : *Varanus nebulosus*, Dum. and Bibr., *Hist. Rept.* III, 483.

Both of these species inhabit the Malayan peninsula, and the first occurs abundantly in Lower Bengal. According to M. M. Dumeril and Bibron, the second also was sent from Bengal by M. Belanger ; but I have never succeeded in obtaining an Indian specimen.

Calotes ophiomachus, (Merrem), Dum. and Bibr., *Hist. Rept.* IV, 482. This agrees sufficiently well with the description cited, save that the terminal four-fifths of the extremely long tail are white, instead of being annulated with white. I have no Indian specimen with which to compare it. If truly identical with the Indian reptile, the analogy of other Nicobarian species that occur also in India, renders it probable that it likewise inhabits the mainland forming the eastern shore of the Bay.*

C. mystaceus, Dum. and Bibr., *Hist. Rept.* IV, 408. The authors cited found this species upon a single specimen received from Burmah. One from the Nicobars accords with their description in all respects as regards structure ; but the specific name does not apply. As far as can be judged from the example before me (preserved in spirit), the brilliant colours of which are now little more than indicated, it would seem that the entire head and throat, if not also several of the anterior dorsal spines, had been bright red, or the throat and lower jaw may perhaps have

* Referring to Merrem's figure, *Hist. Nat. des Rept.* III, 361, I cannot hesitate in considering the Nicobarian species to be the same.

been orange-red ; while the body has evidently been vivid green : colours which probably depend partly on season, over and above the changeableness of hue which these reptiles exhibit at all seasons. The Nicobarian specimen is a male, in apparently the full brilliancy of its colouring indicative of the season of propagation, when no doubt it had the mishap to be secured.

Of the *Ophidia*, I can only enumerate three species.

Python (probably *P. Schneideri*). This was observed both by Mr. Barbe and Capt. Lewis ; but I have seen no specimen.

Trionocephalus Cantori, nobis, *n. s.* A typical member of this genus, having 169 abdominal plates, and 214 subcaudal scutellæ. Length of one specimen thirty inches. This large one was much injured when it was killed, and appears to have shrunk considerably from drying before it was put into spirit ; from which causes it is not easy to describe its markings, but it seems to have been curiously blotched with red—which colour is not observable in a young specimen, fifteen inches and a half long. Both have a distinct lateral whitish line, bordering the abdominal scutæ and ceasing at the vent. Scales slightly imbricated. The young appears to have been dull olive-green above, mottled throughout with a double series of dusky blotches, semi-alternately disposed, with smaller spots and blotches on the sides, below which occurs the whitish lateral line : underparts greyish, from a freckling of minute dusky specks on a pale ground : on the head the markings tend more or less to be obsolete ; but a whitish band proceeds backward from below the eye, and in the young is continued upwards almost at a right angle, and there is also a whitish patch posterior to the broad angle of the jaws, but unconnected with the lateral line of the body. The adult appears to be further variegated above, by scattered white spots composed of one, two, or rarely three scales each. The young is proportionally much more slender than the adult, and the triangularity of its head is less strongly marked.

Pelamydes platurus : having a much greater portion than usual of its tail banded ; the bands diminishing to festoons anteriorly, until they are gradually lost.

The few *Reptilia* here enumerated, do not require any comment : three of them are marine species, viz. the two Turtles and the *Pelamydes* ; but the former are, I believe, more nearly connected with the Islands by depositing their eggs upon the shores of them.

PISCES.

The marine Zoology of the Nicobars being properly that of the Bay of Bengal, it would scarcely be worth while here to supply a catalogue of well known inhabitants of the Bay, even if I possessed sufficient materials for the task. The freshwater species would possess more interest in the present instance: and of those I have not seen any, either vertebrate or invertebrate, or any land *Mollusca*. Capt. Lewis, on nearing the Islands, took a flying fish, which is *Exocætus Commersoni*; and in a native hut he found a rudely prepared skin of *Balistes conspicillum*, Schn. (*B. bicolor*, Shaw); he obtained also a fresh specimen of *B. rectangulus*, Schn. (v. *medinilla*, Quoy and Gaymard, and *fasciatus* of Shaw); also a beautiful wholly green Parrot-fish, allied to *Scarus gibbus*, Ruppell, Cuv. and Val. *Hist. Poiss.* XIV, 231, upon which Mr. Swainson founds his *Chlorurus*, 'History of Fishes, &c.' II, 227 (in Lardner's Cyclopædia). Capt. Lewis brought also a few specimens, chiefly small fry, from the myriads which, (like the *Scarus* last mentioned,) resort to the coral-beds: and among these the *Dascyllus aruanus*, (L.), Cuv. and Val. V, 325, would seem to be particularly common.

Lastly, he procured three species of saltwater Eels, which I have submitted to the inspection of Dr. M'Clelland, whose valuable labours on the very difficult group of apodal fishes require no eulogy from me; and that gentleman has favoured me with the following result of his examination of them:—

"Two of them are known species, I think; namely, *Dalophis geometrica*, (Ruppell), 'Fishes of Northern Africa,' pl. XXX, fig. 3, and *Cal. Journ. Nat. Hist.* V, 213,—and *Thærodontis reticulata*, M'Clelland, *C. J. N. H.*, V, 216, and pl. VII, fig. 1. The third is, I think, a new species, of which the following will be a sufficient description.

"*Thærodontis maculata*, M'Clelland. Two rows of distinct dark spots on either side, of an oval or somewhat oblong rounded form, and placed transversely, the rows extending from the head to the caudal extremity; also a row of more elongated spots on either side of the dorsal and anal fins, parallel with the rays.—Obs. This species bears some resemblance to *Dalophis tigrina*,*v. *Muraena tigrina* of Ruppell, 'Fishes of N. Africa,' pl. XXX, fig. 2; but is more robust, and the spots are without an areola as in that species, and differently placed."

INVERTEBRATA.

The only terrene species pertaining to an invertebrate class, which I have yet seen from the Nicobars, is the common *Scolopendra morsitans*. Of marine species, Capt. Lewis brought a *Loligo*, and various species of *Testacea* common in the Bay : also two species of *Asterias*, and specimens of *Fungia patella*, *Tubipora musica*, and a few other common corals. Of *Crustacea*, he preserved the claws of an extraordinarily large specimen of the common edible crab of India (*Lupa tranquebarica*), with examples of one of the species confounded under *Matuta lunaris*, and a small crab which accords perfectly with the figure and description of *Grapsillus dentatus*, Macleay, in Dr. A. Smith's 'Zoology of S. Africa;' also a *Pagurus*, and a fine specimen of *Palinurus ornatus*, and one of *Thenus orientalis*; with a small *Alpheus*, and one or two other minute *Palemonidae* which are probably undescribed.

(To Mr. Barbe, the Society is further indebted for numerous specimens of mammalia, birds, &c. from Penang, and from the Tenasscrim Province of Ye; also from the interior of the Tipperah hills. Among the Tenasserim specimens are a new Monkey (*Presbytis humeralis*, nobis), three new Squirrels (*Sciurus chrysonotus*, *Sc. melanotus* and *Sc. Barbei*, nobis,—the last being allied to *Sc. insignis*, *M'Clellandii*, and *trilineatus*),—fine specimens of *Ampeliceps coronatus* (p. 32, ante), *Treron viridifrons* (XIV, 849), and various other species of much interest, including several that had only previously been obtained further to the southward, in the Malayan peninsula and Islands.)

Notes, chiefly Geological, from Koompta on the Western Coast (S. India) by the Devamunni and Nundi Cunnama Passes, Easterly to Cumbum, and thence Southerly to Chittoor; comprising a notice of the Diamond and Lead excavations of Buswapûr. By Captain NEWBOLD.

Koompta is a sea-port on the coast of North Canara, in latitude N. $14^{\circ} 26'$, about 119 miles travelling distance, northerly from Mangalore. It stands at the mouth of a river of the same name; into which, from the shallowness of the narrow passage through the bar which blocks its embouchure, vessels of more than five corges burthen pass with difficulty. It is a depôt for the produce of Sircy, Yellopur, Hoobly, Darwar, and much of that part of the Balaghat.

Laterite here forms the surface stratum: the fundamental rocks are gneiss and hornblende schist.

The town itself contains about 400 houses, inhabited chiefly by Gou-ras and Halipaiks, Concani Brahmans, Hurkunters, Karins, Gaveets, and Mussulmans. The Haiga Brahmans live usually in *désams* scattered about the country.

The trade is chiefly in cotton, cotton cloths, rice, betelnut, dried cocoanut, cardamoms, black-pepper, sandal wood, coir-rope, salt, salt-fish, and cashew-nut.

Near this the river cuts through a bed of rich reddish alluvium, mingled with decayed vegetable matter, evidently a fluvatile deposit from the western Ghauts, and from the intervening low jungly country through which the river passes. This stratum covers an almost flat, highly cultivated plain, bounded on the north and south by long, low ranges of laterite hills, which have apparently formed the ancient banks of a great stréam, which is now confined to a small space in its centre.

The cultivation is chiefly rice, sugarcane, betel, and cocoanut trees.

We landed at Oopenputtun, a salt depôt, about 4 miles from the foot of the Ghauts. Here the lateritic banks had closed in towards the river.

Laterite continues to the foot of the Devamunni pass, shaded by thick jungle.

The temperature of the water in the Oopenputtun river was 78° Fah., which was about the temperature of rain water. Temperature of air in

shade, at noon $79^{\circ} 6'$. Temperature of sea water on the coast at Koompta, $78^{\circ} 5'$.

The temperature of the soil, eighteen inches deep, was $78^{\circ} 8'$, which, according to Boussingault, would be the approximate mean temperature of the country. The temperature of most of the streams at the base of the Ghauts I found to be from 78° to 79° .

The month in which these observations were made was August.

The enormous quantity of 144 inches of water is supposed to fall in Lower Canara, from the end of May to the middle of October.

The Devamunni pass.—This pass in the western Ghauts, from Lower to Upper Canara, is about three and a half miles from bottom to top. The formation is much similar to that of the Hossalmucki pass, described in the paper 'On the Falls of Gairsuppa.' The stratification is similarly confused and contorted, and the dip irregular. At the base of the Ghaut, the strike is N. 20° E. ; the dip 35° E. 20° S. Near the top of the Ghaut, the strike is N. 5° W., and dip nearly vertical, E. 5° N.

The vallies, at the bottom of the Ghaut, run W. 15° S. towards the sea, while those on the top have a SSE. direction ; but the transverse vallies by which they are crossed and drained, run in a NE. direction, from the great watershed of the Ghauts to the table lands of the Balaghat, where the course of drainage is again modified by the physical contour of the country, but following generally the easterly slope of the peninsula to the Bay of Bengal, where the rivers disembogue.

The contour of the Western Ghauts at the top of this pass, as well as to the southward, is not that of an escarpment facing to the westward, and gently sloping off to the table lands of the Balaghat, as supposed by many, (a feature which is in fact confined to the more northerly portion of the ridge where the overlying trap affects their configuration,) but is a series of broken peaks, and ridges running generally in a S. by E. direction, and crossed by high transverse vallies, the descents of which are, however, shortened and most abrupt to the western coast, though rarely precipitous as at Gairsuppa. The height of these passes, on the line where the abrupt descent to the western coast commences, is rarely greater than that of the general level of the adjoining table lands from which they lead ; and, in some cases, I am inclined to think, even lower.

The elevation of the top of the Manantoddy pass, determined barometrically by Mr. Babington, is $2,732\frac{1}{2}$ feet above the sea. That of the Devamunni Ghaut, taken approximately by myself, (boiling point) 2,498 feet. This observation was taken at Manjugong, which is probably a little lower than the true anticlinal line. At the falls of Gairsuppa, a little below the summit of the Hossamucki pass, a similar observation made the elevation 2,235 feet.

The extreme height of the table land of Mysore, at Bangalore, reaches (roughly) 3,000 feet; at Seringapatam 2,412 feet; Colar $2,732\frac{1}{2}$ feet; Mysore 2,695 feet; Baitmungalum 2,435 feet; Bellary 1,500 feet; Belgaum 2,500 feet; Poonah 2,500 feet. While the insulated granitic masses on these table lands frequently vie with those of the Ghauts, Sivagunga, in Mysore, is calculated at 4,600 feet, and Betrosson, at the slope of the Ghauts, 6,000 feet. These are only excelled (as far as known) by the Ghaut peaks of Bonasson, 7,000 feet, and that of Dodabetta 8,700 feet, and some others of the Neilgherry and Koonda cluster.

The passes of the eastern Ghauts, as might be expected, have a lower level than those in the western sierra. One of the highest is that of Naikenhairy, 1,907 feet. That of its neighbour, the Moogly pass, from Palamanair to Chittoor, is only $1,635\frac{1}{2}$ feet. (The foregoing measurements are taken chiefly from Dr. Babington's and General Cullen's observations.)

The height of the Heggulla has not, as far as I am aware, been ascertained: it is probably of considerable elevation, since Periapatam, which stands on the western slopes of the Ghauts, two marches east of it, has an elevation of about 4,000 feet.

Munjguny.—Between this place and Devanary, which is usually considered the top of the pass, the Beni river is crossed, which I was assured be the natives is identical with the Oopenputtun river, below the Ghaut. If this be the case, the watershed must be east of Devanary, and probably between it and this place. The stream, swollen by the rains, was unfordable, but is crossed by a rude bridge, called a *sar*, constructed of trunks of trees bound together by leaves, and supported on piers of large rough stones piled up, and secured from being washed away by cases of strong hurdle work thrown round them. The stream was

about thirty paces broad, and running towards the south with great rapidity.

Granite is seen in this vicinity outcropping from the laterite.

The black exterior of the rocks I found to be occasioned by a thin coating of mixed vegetable and ferruginous matter.

The jungle still continues, but is lower than below the Ghauts. The cinnamon tree is abundant: the natives here class it into two species, viz. the male and the female: the former they distinguish by the greater size of its leaf, and the less aromatic and more bitter taste of the bark.

From the top of the Ghauts to Sircy.—The hypogene schists, principally gneiss and hornblende, and a coarse-grained felspathic granite, appear occasionally from beneath the laterite. The low hill, on which the ruins of the old town of Sircy are still to be traced, is covered with a thick stratum of laterite imbedding angular fragments of quartz. The laterite is here used extensively as a building stone; and the quartz is pounded into an excellent sharp sand for mortar.

The indented and more abrupt features, which distinguish the anticlinal line of the Ghauts, are here softened down into smoothly swelling hills, with round tops, in general thickly covered with wood, and vallies in which, and on the hill sides, the cultivation of cardamoms, black-pepper, and the areca nut, is carried on with great success, chiefly by the Haiga Brahmans. The areca trees are planted in rows on strips of ground five or six paces asunder, and separated by channels of running water, two or three feet deep. The pepper vine entwines its clinging tendrils around the tall stems of this graceful tree, covering it thyrus-like, with its foliage; while the long, flag-leaved cardamom shoots out its string of aromatic seeds along the ground shaded by groves of plantains, which form a sort of underwood beneath the tall arecas. These gardens of spices growing in the midst of forests still uncleared, have a unique and very beautiful appearance. The extreme fertility of the reddish-grey vegetable mould, (in spots where the woodman's axe has not yet been felt,) shows that much still remains to be done.

Sircy is a place of considerable traffic, and a depot for the cotton and other produce of the Southern Mahratta country, ceded districts, and part of Mysore, on its way to Koompta on the western coast, whence

it is shipped for Bombay, &c. It is sent down the Ghaut on loaded bullocks; the pass not being practicable for bandies.

The present town of Sircy comprises between 5,000 and 6,000 inhabitants; principally Lingayets and Concanv Brahmans. The chief bankers and merchants are of these different sects: about 800 Mussulmans, Mahrattas, and a few Jains. The custom-house and betelnut depôt are the principal public buildings. There are three distinct bazaars, with one or two broad but dirty and badly-drained streets (1839). The better class of houses are tiled, and often double-roofed.

The ruins of an old but small fort, said to have been built by the Rajas of Soonda, and of a still more ancient one, the work of the Jaina Skeri Rajas, still remain. On the rising ground in this vicinity, foundations of houses and numerous wells attest the former existence of a large and populous town. There is a temple to Virabhadra, and one to the goddess Mariama, whence a snake, patronized by the Brahmans, is said to make its appearance twice a day, probably to be fed. I had not an opportunity of testing this story; which however is by no means unlikely. I have often seen offerings of milk and plantains before the holes of the Cobra, which is held in superstitious veneration by most classes of Hindus. This is the veneration born of fear, which induced the Egyptians to worship the evil principle Typhon,—produced the Devil-worship of Ceylon,—and compelled the poor foresters of the Eastern Isles to make offerings to Thunder and Lightning. Hence the ancient ophitic worship which prevailed so extensively in Southern India, the emblems of which may still be seen piled up carved on rude stones round the walls, or under the trees which shade the older and more secluded pagôdas.

From Sircy to Savandr and Lakiswar.—The face of the country is undulating and interspersed with low, rounded hills to Savanur, in the Southern Mahratta country, about forty-four miles NE. of Sircy. The Canara boundary is crossed about thirteen and a half miles NE. from the latter place. The country is more open; the Ghauts are left behind, and the table land of the Southern Mahratta territory fairly entered on.

The intervening rocks are chiefly the softer members of the hypogene series, as seen at Darwar, viz. argillaceous slate clays, white and vari-

ously tinted with oxyde and hydrate of iron, and carthy chloritic schists. Some of these schists are highly ferruginous. Farther south they pass into the soft, talcose, and chloritic schists, west of Bangalore. Dykes of basaltic greenstone, with beds of kunker, become more frequent as Savanûr is approached. The latter mineral fills up seams in the subjacent rocks.

The breadth of this band of soft schists extends easterly to the town of Lakiswar, and from its northerly strike is evidently the prolongation southerly of similar strata at Darwar already described. The dip at Savanûr was 40° easterly.

Régur was first observed a little to the west of Bankapur; near which town the vegetation, peculiar to the Ghauts, terminates abruptly.

From Lakiswar to Gudduck, granite, gneiss, and hornblende schist are the prevalent rocks, and easterly to Bellary, in the ceded districts; but, as the geology of the country between Gudduck and Bellary, has already been noticed, I shall not dwell farther upon the subject here, but proceed at once on our easterly journey from Bellary towards Cumbum.

Bellary to Davankonda.—Gneiss is the principal rock between Bellary and Davankonda, (a distance of fifty-three miles) basing a plain sloping northerly towards the Tumbuddra, the surface of which (with a few interruptions of reddish alluvial patches) is covered with a thick bed of *Régur*.

The Hogri river is crossed about twelve miles from Bellary, at the village of Moka. It is here about 700 yards broad: its bed is now (May) a dry extent of sand, and its banks barren with the heaps, and hills of drifted sands. The prevailing westerly winds, cause the dunes to march in an easterly direction, north of Auspari. The next march from Moka, the granite is seen bursting through the gneiss in a low ridge: oxydulated iron replacing the mica in grains and nests: east of Auspari a large trap dyke is seen running ESE.

Davankonda is situated at the base of one of the granitic outbursts, on the borders of the Andhra kingdom. Telinghi is much mixed here with the Canarese, or Karnáta, of Bellary.

The soil at the base of the granite is reddish, and sandy to a certain distance round the base: at the edges of this upper layer the *régur* will be found underlying it; and below the *régur* either the gravel result-

ing from the weathering rock, or a bed of kunker. Actynolite, colouring both compact felspar and quartz in drusy crystals in pegmatitic veins of red felspar and quartz in the gneiss, is of common occurrence.

Kupputral.—Is a polegar stronghold, formerly of great notoriety in this country, which bristled with polegar fastnesses and strongholds. The granite rises here into steep bosses, cliffs, and tors, of no great height however.

On the summit of a rocky shelf, crowning the rock, and insulated by a broad fissure in the granite cliff, is perched a small watch-tower, whence there is a good prospect of the surrounding country, the features of which to the south and east are savage and rocky. The nearest approach from Bellary is by rocky ascents and descents, and by defiles not practicable for a cart. On the ascent I picked up a fragment of a very beautiful rock which may be termed actynolite porphyry, being composed of a bright green actynolite felspar (compact), imbedding red felspar crystals.

About a mile east of Kupputral the granite is overlaid by sandstone, which forms the range of Cowilhutty, supporting a flat cultivated table land. I had not an opportunity of examining these rocks at their junction line. A greenstone intersects the granite in the plain.

Codamoor.—At Codamoor, direction SE., fragments of altered sandstone abound: the next march the country is a wide plain, watered by the Hendri river, and studded with bare granitic rocks in small piles and clusters. Gneiss, basaltic greenstone in dykes, and a porphyritic granite are the prevalent rocks. A little north of the town runs one of these singular abrupt beds of compact reddish quartz rock, which evidently belongs to the hypogene series by position, interstratification, and conformable dip. It forms a short abrupt ridge, apparently about 100 feet high, and passes into a coarse jasper, penetrated with numerous veins, strangely contorted, of a whiter quartz, with iron glance in nests. It is also veined with siliceous earth, of a grey or bluish tinge, imbedding crystals of felspar, and is often porphyritic in structure.

A thin purplish-black *enduit*, which coated some of the fissures, gave evident traces of iron, and faint traces of manganese on being fused with borax before the blow-pipe.

On the western flank of this range, which runs nearly north and south, a dyke of basaltic greenstone intersects the plain; and near it, one of a

dark chloritic felspar porphyry, which is seen in a section afforded by a well about 40 feet deep, at the south extremity of the ridge. It is overlaid by a stratum of kunker ten feet thick, which has evidently been deposited by water, charged with lime, rising through fissures in the subjacent rocks, which are often encrusted with kunker.

The Hendri river is forded about a mile to the west of Codamoor. It is 220 paces broad; banks and bed of silt and sand, imbedding tufaceous concretions of carbonate of lime, which encrust the roots of grasses, &c. The shallow water in the channel of the river had a temperature of $71^{\circ} 5'$ Fah., which is a little lower than the average temperature of rain water in this part of the coded districts. The temperature of the air in shade at the time of observation was 81° . The great evaporation going on from the wide, flat, sandy bed, may have diminished the temperature of the shallow stream which slowly trickled along its centre. At Codamoor, the temperature of a brackish well, sixteen feet deep, was 81° ; that of a sweet water well, of similar depth, 84° ; and that of a third slightly brackish, and thirty feet deep, 83° .

Kurnool.—From Codamoor to Kurnool, at the junction of the Tum-buddra and the Hendri, extends a plain covered with little interruption, by régur. In this plain the diamond limestone and sandstone formation meet with and overlie the hypogene schists; over which we have so long been travelling. The sandstone is seen in the low hills, about one and a half miles south of Perla, which lies ten and a half miles westerly from Kurnool; near this are numerous dykes of basaltic greenstone and deposits of kunker.

A little to the NE. of Peddapa, five and a half miles westerly from Kurnool, the limestone was first observed *in situ* as a slightly elevated bed, crossing the Kurnool road, running in a southerly direction, and dipping towards the east at an angle of 35° ; while the hornblende schists, on which it rested unconformably, were nearly vertical.

The limestone is of a reddish-brown colour externally, but internally of a purplish-red; structure, schistose. It effervesces feebly with acids, and fuses into a light greyish-green enamel, leaving a white calx of caustic lime. It passes into cream-coloured, dull yellow, and green varieties, which were analysed for me by my friend, Dr. Macleod, Inspector General of Hospitals, and found to contain so much magnesia

as, to give them the character of dolomite. It often contains translucent nodules of a siskin green nephrite. In some places, elliptic and tubular cavities are observed in the massive varieties: the more exposed of which are generally empty; while others are seen filled with a ferruginous clay or earth, which is magnetic after exposure to heat. The elliptic cavities often occur in strings.

A bed of ferruginous sandstone is seen in the limestone, a little further eastward.

The hornblende schist has evidently been greatly waterworn near its contact. Its surface, to the depth of several inches, is much weathered, and has sometimes crumbled into a dark-green sandstone, cemented by calcareous matter from the superincumbent limestone; at others it assumes the aspect of a rust-coloured siliceous schist, impregnated with calcareous matter. Many of the loose blocks of hornblende schist have been much corroded, apparently by aqueous action.

As the edges of the limestone are left behind, and as we advance soon towards the centre of its area, the disturbance and dip become less, till near Kurnool, as seen in the banks of the Hendri and Tumbuddra, the beds are nearly horizontal. Another change of dip, from the nearly horizontal to the vertical, may be seen in the space of a few yards in the limestone beds to the right after entering the western, or new gate of Kurnool fort.

The colour of the limestone at Kurnool is generally a light bluish-grey, which passes into a deep blackish-blue. Near trap dykes, it often becomes crystalline, magnesian, and cream-coloured; or speckled and variegated with green bands, like some varieties of serpentine.

It usually abounds with iron pyrites; and to the right of the western gate in the fosse of the fort, may be seen to imbed a fine layer of red jasper, often reticulated by bluish quartz, and calcedonic veins. This jasper also runs in veins, and occasionally in nodules. Near this, the limestone strata have evidently undergone plutonic disturbance, being elevated with waving and bending of the layers into a nearly vertical position as before mentioned.

From Kurnool to the Eastern Ghauts.—After having forded the Hendri to the eastward, low rugged hills, the outgoings of a great dyke of basaltic greenstone, having a westerly direction, are crossed, altering

the limestone and its associated purple shales in a singular manner. The latter are converted into a compact jaspideous rock, and the former loses its carbonaceous colouring matter, and becomes siliceous, or magnesian, or both, and is often coloured, with green bands and specks. The portions nearest to the dykes sometimes break, when struck by the hammer into fragments with smooth sides, marked with dendritic delincations.

Beyond these hills, the head of the central sandstone range of Kurnool, is rounded to the broad and almost flat valley of Nundial, based on the limestone and its shales, which are generally of a chocolate and reddish hue, with thin seams and layers of faint green. The surface soil is for the most part *régur*: on a sub-soil of limestone debris, or on beds of kunker, a poor pisiform iron clay is sometimes found, mingled in the lower portions of the *régur*.

Eastern Ghauts.—Having crossed the valley of Nundial, the eastern Ghauts are approached at Gazoopilly, a pleasant village at their western base. Their outline is apparently pretty level, continuous, but broken now and then, by a hog-backed ridge, or the rounded frustrum of a cone, rising above the general elevation of the central anticlinal range, which may be about 1,000 feet above the plain; though few of the highest peaks attain the elevation of upwards of 3,000 feet above the sea. The base, sides, and most of the summits, are clothed with jungle infested by tigers.

Lead Mines and Sulphate of Barytes.—After ascending the Nundi Cunnama pass, about three miles, and crossing the first chain of hills, we turned from the bullock-road into the jungle on our right, and ascended a steep rocky hill. The descent on the other side brought us on the Mahdeopur wood cutters' tracts, along which we proceeded 4 or 500 yards easterly, passing a small, rough, stone enclosure, formerly used for washing the diamond alluvium. We now again turned into the jungle on the right of the path, and passed up the dry channel of a brook, which ran westerly in a deep defile. After a few minutes' walk, two jungle-covered hills rose on each bank from the brook's margin. The one on our right was covered with clumps of bamboos, and rugged from top to bottom with choked up excavations. I traversed an area thus broken up, upward of half a square mile in extent. These excava-

tions are of irregular shape and size, and vary now from five to fifteen feet deep.

The formation is the shales and schists of the diamond limestone and sandstone, here of a dull greyish-blue, and green hue, argillaceous in character, and veined in all directions by white quartz and chert. These veins are the matrix of the galena and sulphate of barytes. The former new mineral occurs in nests and strings of great brilliancy and purity, but I did not observe any thing like a continuous lode. The sulphate of barytes is in large masses, nodules, and short veins, associated with a dull-green crystallized mineral, calc spar, a white mineral like calamine, iron pyrites, and a faint reddish mineral, sometimes compact, and sometimes approaching saccharine in texture; which, Mr. Piddington, after analysis, has pronounced to be that rare mineral, carbonate of cerium. The quartz composing these veins is often honey-combed, and its cavities lined with an orange-brown coloured dust, as we see in the vein stuff of European mines. The excavations are overgrown with brushwood, and apparently have long been deserted. They are about six miles east of Gazoopilly, and within a short distance of the principal coast communication of Nellore with the table lands of the ceded districts by the Nundi Cunnama pass; and the jungles yield a cheap and never-failing supply of fuel; but until the discovery of a continuous lode, it would hardly be advisable to enter deeply into any mining speculation in those plumbiferous tracts. However, there can be no doubt, that these localities have not yet been fairly tested by European practical skill and experience.

Buswapúr Diamond Mines.—The diamond pits of Buswapúr are still nearer to Gazoopilly, extending from about quarter of a mile NW. from the present village of Buswapúr, easterly towards the base of the eastern Ghauts, and covering an area of certainly two square miles. They are even more overgrown by jungle than the lead mines, and have evidently been given up at a more ancient date.

About three-quarters of a mile SE. from the modern Buswapúr, near the ruins of the old village, are about twenty other excavations overgrown with thicket, like the rest; and ten more midway between them and Gazoopilly, a little to the south of the foot-path to the pass. These excavations vary from two and three yards to fifteen yards in

length, and from one to four or five yards in breadth: their present depth (much choked up by rubbish) is from five or six feet to sixteen feet. The only stratum cut through is a thin layer of reddish alluvial soil, into a bed of gravel of unknown thickness in some parts. The pebbles composing these gravels have evidently been derived from the limestone and sandstone hills of the Ghauts, at the western base of which they immediately lie, and consist principally of cherts of various colours, quartz, compact sandstone, and a few of basanite. Layers of sand are occasionally interstratified.

Some of the pebbles are as large as a cocoanut, but the generality not larger than an orange or walnut; most of them rounded, and lying on their flat sides, having the major axis in an east and westerly direction. I cannot find that the rains of present monsoons add to some of these gravel beds, many of which are situated far from the reach of present torrents, and through which the streams often cut deep channels; but am rather inclined to believe, that some of them must have originated during the elevation of these mountains from the bed of the ocean.

Nundi Cunnama pass.—This pass lies in the direct line of commercial communication from the coast and ports of Nellore, Masulipatam and Ramapatam, with Kurnool, the ceded districts, and Southern Mahratta country. It is steep, and can only be traversed like the Hegulla pass, by bullocks lightly laden, but is susceptible of great improvement. Yet with the exception of those of Sidhout, Jungumrazpilly and Yeddedgoo, the Nundi Cunnama is the most practicable, and certainly in the most direct line. Loaded bandies are compelled to take the circuitous route of Cuddapah and the Yeddedgoo pass.

The improvement of the Nundi Cunnama into a road practicable for bandies, would much improve the trade of the districts to the west of it. In 1836, from information obtained on the spot, about 1,000 bullocks pass over from the eastern coast laden with its salt and cloths, and returning with iron for ploughs, the produce of hill furnaces, and cocoanuts, betelnuts, and teak and other timber. Remnants of wells in the forest, and a small ancient temple to the Bull Nundi, (hence its name) attest the antiquity of this channel of commerce. The formation is similar to that described around the lead mines: but the higher ridges are capped with sandstone. That singular aboriginal race, the Chen-

suara, act as a hill police. I have given an account of them elsewhere. They may be seen usually at Metta and Pacherla, two police stations in the forest.

The pass itself is not much more than two and a half miles, but the breadth of the hilly and jungly tracts from Gazoopilly to Kistnashettypilly, on the eastern side of the range, cannot be less than twenty-three miles.

Cumbum.—Cumbum is nineteen and a half miles to the eastward of Kistnashettypilly. The hills near the bund of the large and beautiful tank, are of sandstone. This fine sheet of water is about five miles long by three or four broad. It is nearly surrounded by picturesque hills, and several rocky islets stud its bosom.

From Cumbum to Budwail.—We shall now turn southerly, down the Cummum or Budwail valley, which is chiefly based on the shales of the diamond sandstones and limestone formation running southerly, and containing veins, and large beds of white quartz. Near Yelmacul a mass of porphyritic syenite is seen rising abruptly through the shales at its base. A pagoda built on its summit renders it conspicuous. The wells near its base exhibit the fissures of the shales, encrusted with carbonate of lime. This is the case also farther south, in the valley at Poormáwala, when the quartz veins frequently imbed iron pyrites. The summits of the range running down the centre of the valley from Poormáwala by Budwail to the Pennaur, I found capped with compact sandstone, in almost tabular masses, associated with arenaceous schists. The lower parts and base are composed of the shales or slates.

From Budwail to the Auripoya pass.—From Budwail, southerly to the Auripoya pass, the shales prevail, and become softer and lighter coloured. The soil is chiefly reddish, light, fertile, and generally well watered. Subsoil—a bed of kunker, nodules of which and fragments of quartz, often honey-combed, are scattered over the surface of the lower part of the valley.

Auripoya pass.—This is a rugged pass, about eight miles long, through the Sidhout ranges into the transverse valley by which the Pennaur passes, through the Ghauts to the maritime plain of Nellore. Here sandstone and arenaceous schists prevail; angular blocks of which, and fragments of a white and a grey smoky quartz, encumber

the bottom of the pass ; till, at length, it debouches on the sandy bed of the Pennaur, a little to the east of Sidhout fort.

Sidhout.—The blue limestone is said by the natives to be found under the sands of the river ; and it is seen in blocks in the walls of the fort ; but the hills, which I had an opportunity of examining, were all of sandstone, and sandstone conglomerate.

A beautifully variegated variety of sandstone is quarried near this. The Hindu pillars in the fort gateways, which are carved out of it, have the appearance of an elegantly veined wood. The tints are often waved, or acutely angled bands of different shades of brown, resembling on a large scale those in agate.

Diamonds, I was informed, during the rule of the Patan Nawabs of Cuddapah, who often made Sidhout their place of residence, were dug at Durjipilly, and, at another place among the neighbouring hills.

The Pass of Sidhout.—The pass of Sidhout is a transverse valley, as before stated, through which the Pennaur flows from the table lands of the ceded districts, through the Eastern Ghauts to the Coromandel Coast. There does not, however, appear to be any great or sudden lowering of level to the coast-land, as we find that the height of Cuddapah, 507 feet above the sea (Cullen), hardly exceeds that of the plain at the eastern base of the Ghauts. The course of the Pennaur, therefore, at Sidhout, from the little inclination of its bed to the eastward, is not more accelerated than when winding its way over the gently sloping table lands. The general direction of this transverse break in the Ghauts is easterly ; though, like that of Gundicutta, it makes considerable angles. It is about twenty-four miles long, and about two and a half miles broad at Sidhout. I have not had an opportunity of examining its eastern exit near the Someswar pagoda ; where, I understand, the river is confined between two rocky ridges, about half a mile asunder.

From Sidhout to Cuddapah.—The road lies along the valley of the Pennaur, which opens out to the westward into the horizon-bounded plains of Cuddapah. The rock seen in the lowest situations, is a bluish and rather grey crystalline limestone, bounded on either side by the high sandstone ranges of the easterly ghauts. The limestone is veined with quartz and calcspar, and imbeds cubic crystals of iron pyrites. A few

miles from Cuddapah, it crosses the valley of the Pennaur in a well defined ridge, across which the road lies by a small pass, called the Bundi Cunnama. The ridge to the south I found to be capped by sandstone. The limestone here has an external scabrous aspect, owing to the less rapid weathering of the veins of chert which run through it, and which project in relief from its surface. At the eastern foot of the pass the rock has been excavated for the sake of the dark flint-like chert it imbeds, which was formerly used for gun-flints by the armies of the Cuddapah Nuwabs, and by those of Hyder and Tippoo; but the material is too brittle to make good flints. It is veined with quartz which often forms a perfect network of cells, lined and stained with an orange-coloured ochre.

Cuddapah.—The limestone formation in the vicinity of Cuddapah and the sandstone ranges to its south, have been described in notes from Madras to Goa. The latter range I crossed to Govincherroo, in the plain on the other side, by the Bankrapett pass.

Govincherroo to Rachooty.—At Govincherroo granite is seen in low bosses and large blocks, *in situ*, at the base of the sandstone range; and is thus occasionally seen in tors and logging stones, and in the beds of nullas, in the plain to Rachooty, about thirty-four and a half miles south from Cuddapah. Near Rachooty, it often passes into pigmatite; actynolite and chlorite are seen in its veins. This granite formation evidently extends to the eastward to the bases of the sandstone ranges of Chendorghirry and Tripati, which are seen in picturesque outline, flanking the plain and bounding the view to the right.

The drainage lines of this part of the plain from Punganore, converge in a N. by E. direction, to the singular gaps of Mandasir and Cheyair, in the chain through which they find their way northerly to the bed of the Pennaur near Sidhout, which we have lately left. It might be worth while to examine the configuration of these gaps, and the sections afforded by them. Dykes of basaltic greenstone are occasionally seen in the granite.

Rachooty to Chittoor.—The road lies over a flattish valley between irregular clusters of granite rocks on either side, which occasionally approach and recede, and sometimes disappear for a while, appearing again at irregular intervals. Spurs of the rocks occasionally cross the valley or

plain; and also dykes of basaltic greenstone, which were numerous south of Peelair.

About ten miles from Peelair, and six from Damulcherry, a short and easy pass in the granitic ridge to the left, leads the traveller almost insensibly over the great line of elevation, by the village of Damulcherry, into the plains of the Carnatic. About seven miles north of Damulcherry, runs the modern boundary of Cuddapah and Arcot, precisely on the ancient position of the Andhra and Dravida regions. At Damulcherry both Tamul and Telinghi are spoken, and the latter language I found much in vogue at Chittoor.

At Peelair, gneiss and hornblende schists appear more frequently near the bases of the granite hills; and, at Damulcherry, the same rocks, with a leptinitic gneiss veined with curite and small grained granite, are the prevailing rocks.

From Damulcherry to Chittoor the floor of the break in the Ghauts, is an undulating bed of gneiss and hornblende schists. The more abrupt and peaked elevations on the north and south of the break, appear to be of granite.

About ten or twelve miles WNW. from Chittoor the descent to the last is palpable, but easy and gradual, very unlike the abrupt and high pass of Naikanairy farther south. The country is open and free from jungle, which is confined to the ravines and sides of the lofty hills of gneiss. The latter in their bold, rounded contour, and partially wooded sides, reminded me of the Pyrenees near Rosas.

In the distance to the north of the foot of this descent, is seen the high columnar rock of Pillyconda, (Tiger's hill) a striking object on the horizon.

Chittoor.—Chittoor stands in the plain at the northern and western base of a granitic range which runs south-westerly towards the Javadic ranges, which skirt the eastern flank of the Amboor valley. The granite composing the rocks, close to the travellers' bungalow, contains large crystals of foliated hornblende, sometimes curiously interlaminated with olive-green mica. The crystals of felspar are usually white, with red and faint green crystals interspersed. The felspar is occasionally translucent, and assimilates albite in external characters.

The exterior of many of the large masses of granite, which cover the hill, abounds with little cavities, from the size of a pea to that of a wal-

nut, occasioned by the weathering and falling out of the nests of mica and hornblende just mentioned.

Actynolite, chlorite, and pale rose-coloured garnet were the other minerals observed in this granite.

The range of hills, having a north and south direction, and though a break in which the Chittoor river runs easterly to the Poni river, I found to consist of gneiss often highly contorted and penetrated by granite in large dykes. Some portions of this gneiss are granitoidal, and, in hand specimens, would be set down as granite; dykes of basaltic greenstone also penetrate both granite and gneiss.

Before closing this paper I must remark, that the soil from the plain of Rachooty to Chittoor, has been generally of a reddish and sandy nature, evidently the alluvium of granitic and hypogene rocks.

The great sheets of régur end abruptly near Cuddapah, their barrier to the south in this direction appears to have been the Bankripattah hills.

हासयाटिक् सोसाइट् संस्कृत नागराक्षर ॥

महाभारतं आद्यन्त ४ खण्ड	...	...	४०
महाभारतीयान्तर्गतसूचीपत्रं आद्यन्त			
४ खण्ड	...	...	६
नैषध आद्यन्त सटीक् १ खण्ड	...	...	६
हरिवंश आद्यन्त १ खण्ड	...	...	५
राजतरङ्गिणी आद्यन्त १ खण्ड	...	...	५
सुश्रुत आद्यन्त २ खण्ड	...	...	८
सूची पुस्तकं १ खण्ड	...	...	१
लासनेन रचितं सर्व साधारण	...	...	४
गीतगोविन्द १ खण्ड	...	...	२॥
यज्ञदत्तवधः १ खण्ड	...	...	२२॥
शकुन्तला नाटक	...	...	१०

فهرست کتابهای عربی و فارسی مطبوع که در خانه اشیا تک
سوسیتهی حسب تفصیل الذیل بقیتمهای مناسب برای فروخت
موجود اند

اسامي كتب	قيمت
فتاوی عالمگیری مرتب بشش جلد في جلد	هشت روپيه
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JOURNAL

OF THE

ASIATIC SOCIETY.

On the tenures and fiscal relations of the owners, and occupants of the soil in Bengal, Behar, and Orissa. By JAMES ALEXANDER, Esq., B. C. S.

The word Zemindarree, in the time of the Moghuls, signified the particular extent of land over which one zemindar, or landholder, exercised jurisdiction; the collection of the revenues of that district was one of the chief duties entrusted to him, and the object of the greatest importance to the state. The amount of revenue leviable upon it became the distinguishing character of each zemindarree, and it was the only matter regarding it of which a record was kept in the superior revenue offices. Although the area was entered in some of the registers, yet the information regarding this, or as to the peculiar boundaries or products of each tenure was very defective. When the Perpetual Settlement was effected under the British Rule in Bengal, Behar and Orissa, the same form of record was preserved, and to this day little more is known of a zemindarree than the amount revenue which it is bound to pay the state. For the actual collection of revenue, and better preservation of individual rights, more particular distinctions have become necessary; but these will be more conveniently treated of under another head.

Zemindar. This officer, under the Moghul government, exercised powers as phoujdar, or chief of the armed force, collector of revenue, and civil judge in trifling cases. On the accession of the English, his

services were required only as a middleman between the state and the actual cultivators of the soil. Although the zemindar's office had become by use hereditary, yet it is uncertain whether he had any proprietary right in the soil itself. It was, however, found convenient to bestow this right upon him, in order that it might be available as a security for the payment of the revenues of the state ; and the zemindar is now regarded as the proprietor of his zemindarree as long as he makes good the Government revenue leviable from it. Should he fail to do this, his proprietary rights are liable to sale for the realization of the demand.

It was incumbent on the zemindar, in his character of collector of revenue, to account to the state for his collections ; his remuneration consisted in a per centage on his collections. The title to office having been received as a right, the same rule held good with reference to these emoluments, insomuch that the incumbents of zemindarrees were held entitled to their allowances or per centage even when they declined to perform the duties of their office by undertaking to pay the amount of revenue at which it was assessed.* These allowances so set aside were called *Malikana*, and averaged about ten per cent. on the gross assessment of an estate ; expenses incurred in the management of an estate are either entered in the account current, and their amount deducted from the gross proceeds, or are regulated by a fixed allowance on their account : where this latter plan is adopted, they are calculated at from ten to twenty per cent. on the assessment.

The original title of the zemindar then consisted in his right to hold the lands under his jurisdiction, on condition of accounting to the state for the net proceeds after deduction of expenses and his own per centage allowances. It is evident, however, that the state had no alternative between placing implicit reliance on the accounts given in by the zemindar or testing them by an annual investigation or assessment of the lands, and that if such took place the value of the zemindarree was entirely dependent on the result. To obviate this, it was determined in the year 1790, under the local Government of Lord Cornwallis, that an assessment should be made of all estates, and that the amount so assessed should be the sum which Government

* Shore's Minute, 18th June 1789, para. 202nd ; 18th September 1789, para. 2nd.

might demand every year, and that no further demand should be made for ten years : this period of ten years was subsequently increased to perpetuity ; and all estates, held under assessments so imposed, are called Perpetually Settled Estates, or Zemindarrees.

Various causes, however, have operated to prevent or impede the settlement of many zemindarrees. These are disposed of for shorter periods, and called Estates under Temporary Settlement. The condition of tenure of these is as in Perpetually Settled Estates, the payment of the Government demand ; but the period of tenure is limited by that of the lease under which it is held, and at the expiration of this the estate is open to re-assessment.

Confirmation by competent authority is essential to the validity of either a perpetual or temporary settlement.

It is evident, that when the yearly rent of a zemindarree became fixed in perpetuity, and the payment of it was the only condition of the tenure, the condition of the zemindar was materially altered ; instead of being only interested to the extent of ten per cent. in the increases upon the annual proceeds of his estate, he had a right to appropriate to his own use all surplus proceeds after defraying the Government revenue. Rapid improvements took place in all properties held under this fixed assessment ; the favourable returns from these, together with the lightness of the original assessment, have raised the incomes of proprietors so high, that the term *Malikana* is no longer applicable to the sums, which they receive in their character of zemindars. These are now designated, generally, as Proprietary Profits ; they consist in the net proceeds of an estate after deducting the Government revenue and the expenses of collection, and will of course vary very much in proportion to the capabilities of an estate, and the success of the management to which it is subjected.

A talook is a subordinate tenure within the jurisdiction of a zemindarree. Talooks were of various descriptions. In some cases the talookdar had obtained the fee-simple or proprietary right in lands composing their talooks, either from the zemindar or his ancestor, or directly from the state ; and his title was indefeasible as long as he paid the Government dues : in others, the incumbency of the talookdar in the subordinate tenure was prior to that of the zemindar in the larger ; in others, the zemindar had never any proprietary right in the lands of

the talook. In all these tenures it was ruled at the formation of the Perpetual Settlement, that the talookdars should have the privilege of entering into engagements, and paying their revenue directly to the state, and that they should be independent of the zemindar. Talooks of this class are called Independent, or *Huzooree Talooks. In cases where the deeds under which the talook was formed only alienated the zemindar's title to collect the rents without conveying any proprietary right in the soil, or where it was evident from the form or wording of the lease that the zemindar contemplated the resumption of his title, the talook was considered dependent, and the rent of the talook was included in the assets of the zemindarree, and paid to the state through the zemindar. Under many circumstances, to be detailed hereafter, the rent on the talook was liable to enhancement on the part of the zemindar. It was however ruled, that neither loss nor gain on the rents derived from his subordinate tenures, could affect the amount of rent payable by the zemindar to the state. The rents of talooks were either increased or diminished, or new talooks were established at his own risk; and the civil court was in all cases the arbiter of his title to interfere with his talookdars.† With reference to the establishment of new talooks, it was laid down that he could not alienate lands for a period extending beyond that of his own incumbency; that this being conditional on the payment of Government revenue, any failure in this payment would render void his own title, and also that of all other tenants holding immediately under himself. The effect of this rule is, that on an estate being sold by auction for arrears of rent, all leases granted by the former proprietor since the Decennial Settlement become void, and the lessees liable to an enhancement of their rents under certain restrictions, which will be more fully specified hereafter.

The cultivators of the soil in India have acquired various titles and privileges, acquaintance with which is essential to understanding the revenue system. Indiscriminate use of terms has given this part of the

* The word *Huzoor* signifying literally, *the presence*, is applied in India to designate the extant supreme authority in the land. The addition of a vowel affix gives it the form of an adjective, and thus a *Huzooree Talook* comes to mean a tenure having directly to do with the Supreme Government without intermediate lien, or intervention.—Eds.

† Clause 8, Section 15, Regulation VII. 1799.

question some appearance of intricacy: to obviate this, a mere detail of the titles will be given in this place, and the privileges obtained under those titles will be more fully considered when the rates of rent are discussed; for it is evident, that in the ryuttee as in the zemindarree tenure, the rent which it will yield is the distinguishing mark of each sort of tenure, and the only point about it to which interest attaches in a discussion on revenue laws. The exact meaning of the word *ryut* is not conveyed by the word cultivator; for a man may be a ryut without being a cultivator: neither is the word *resident* a proper translation, for a man may be a resident without being a ryut. By the word *ryut* is implied a certain relation towards the community of the village of which a man is a ryut, and towards the zemindar of that village. An artificer or shopkeeper may stand in these relations of citizenship and vassalage, although perfectly unconnected with the cultivation of the lands of a village: in pursuing his occupation or trade in another part of the country he will still call himself the ryut of the particular village, and the particular zemindar with which he is connected as a ryut. When he dissolves this connection and becomes the ryut of another village, his rank and title in his new location are completely changed. This discussion appears necessary, because it is not uncommon to observe great misuse of the word *ryut*, as a revenue term; whereas it is not, until connected with some other word implying employment in culture, that it acquires any value at all. Thus the terms *kudeemee* or *morousee* ryut do not imply a ryut possessed of any peculiar privileges, merely that his ancestors were ryuts in the village, even a *moccurreree* ryut may hold only the area of his homestead, and these are the most common sort of *moccurrereedars*. The proper definitions and distinctions are *khod-khasht*, *pae-khasht*, *moccurreree khod-khasht*, *morousee khod-khasht*, *kudeemee khod-khasht*, *moccurreree pae-khasht*, *morousee pae-khasht*, *kudeemee pae-khasht*. The several privileges which these various titles confer, will be discussed under the head of Rates. It will be necessary to observe, that the term *jote* is the word which may be most conveniently employed in expressing the land held by each particular ryut.

The rent of land is the hire paid for the use of it. The original contract was very much this;—the proprietor of the soil gave the use of it, and the cultivator gave his labor, and the proceeds

or crop were divided between them. Many causes, however, tend to disturb the primitive simplicity of this arrangement ; the degree of labor requisite to ensure a compensating return is liable to great variation. Labor is not the only capital needed : the implements of husbandry, cattle employed in agriculture, seed, the means of protection,—all require outlay, and it soon becomes a question, in what proportion this is to fall on the contracting parties ? The landlord must constantly observe his tenant to ensure his honesty, and the tenant is discouraged by the reflection that one-half of his labor must be bestowed for the benefit of another. The first step towards the adjustment of these difficulties is, generally, a variation in the proportion of the crop receivable by the landlord, calculated with reference to the contribution which he makes towards the joint capital employed in the cultivation, whether in the shape of seed, cattle, hired labor, or any thing else necessary to raising the crop. Where the cultivator contributes labor only, he receives somewhat less than one-half of the crop ; where he contributes both labor and capital, he receives more : the latter is most commonly the case in India, but even after the adjustment of the proportions due to either party, difficulties will still remain, in any scheme of partition. The two most important have already been noticed—the necessity on the part of the landlord, of constantly watching his tenant ; and the discouragement on the part of the tenant, in bestowing extra labor and capital. To obviate these inconveniences, the landlord allows the tenant to redeem the proprietor's share in the proceeds, and this gives rise to money-rents, or the payment of rents of money. Although a revenue officer in this country has generally the task of discovering and recording the rents actually paid, rather than that of determining what they ought to be ; yet it is important, that he should have some knowledge of the various causes which affect the adjustment of money-rents, and indeed his doing so is essential to his understanding the different tenures under which ryuts hold, and the rates at which they are assessed. Soil, stock, and labor, are all three necessary to the production of a crop : if these were all three contributed in proportions of equal value, it is evident that the hire of the soil should equal one-third of the whole produce ; but in agreeing to pay an unvarying rent the tenant ensures the landlord against losses by failures of crop, defective seasons, fluctuations in the value of grain and

labor, and relieves him from all the care and expense of watching over and transporting his own share of the produce. In order therefore to make an equitable adjustment in converting rents paid in kind into money-rents, every one of these points should receive attention; and although it is probable that these questions were not formerly understood in all their minuteness of detail, yet we find that in practice the cultivator discovered them as it were by experience, and limited his payments in money to the amount at which cash payments were advantageous or not hurtful to his interests:—and here it must be recollected that in the earlier history of a country the producer and consumer are more nearly on an equality with each other, that it is not until the increased possessions of the latter give him a monopoly over the land that he can dictate its price to the former; the careful recollection of this fact will afford material assistance in the consideration of the various rates paid by the different classes of cultivators in India. In discussing these it will also be necessary to bear in mind the distinction between the actual rate or *nerick*, and the various additions which have been made to it by the avarice of the landlords. This was formerly so well understood, that in the earlier discussions on revenue matters in this country we generally find the term *ussul nerick*, as distinguishing the actual rent or hire of the land from all extra demands made under other pretences. Although this distinction has been very much lost sight of, yet the careful analysis of the accounts of any zemindarree will shew the total demand of *dustúr* against the ryut is made up of the *ussul nerick*, and various other extra charges. Although these latter are discountenanced and invalid by law, yet the possession of a monopoly of a necessary of life will always give rise to the disposition to profit by it, and landlords in this country are not more disposed than in others, to place other limit on their desires than that which necessity imposes. The cultivator must have land, and he can afford to pay for the hire of it, the whole surplus proceeds remaining after the deduction of the costs of production, and a sum sufficient for his own maintenance. In England this is so well understood, that the capability of the tenant to pay is the only limit to the landlord's demand for rent. In this country ancient institutions, new laws, and large tracts of waste land, contribute to defeat the monopolizing tendencies of the landlord; but there is a constant struggle between himself and his tenantry regarding

the share which they are respectively to enjoy of the surplus profits of cultivation. In England there being no general laws for the protection of the tenantry, many landholders have at different times purchased peculiar privileges from their landlords, which have descended from father to son, and are in force to this day ; the effective conditions of the judicial institutions rendering any attempt on the part of the landlord to set them aside, useless. The general laws in this country are well calculated to preserve to the cultivators all privileges, which ancient institutions or prescription without any special purchase or individual guarantee have conferred upon them ; but various causes have prevented their taking advantage of the protection of these laws. Now, however the necessity of obedience of the law and executive power is becoming daily more apparent, and exactly in proportion as these assert and maintain their authority well, the peculiar privileges of the cultivator receive protection : hence also careful examination of them with a view of understanding what they are, becomes daily more interesting and important ; as the *nerick* or rate of rent may be considered the index, or as it were test of the value of these privileges, they will come most conveniently under consideration in a review of the various sorts of rates which prevail in this country.

*Nerick moccurree.** A fixed rate of payment secured to the cultivator under the guarantee of a written document ; it is essential to the validity of tenure at a moccurree nerick, that the land had been held at fixed rates twelve years previous to the Decennial Settlement, that the payments should have been uninterrupted and uniform. Any failure of payment renders the lease void, and proof of increase of payments on former occasions is generally regarded as evidence, that the moccurree tenure has been broken up. Moccurree nericks established by zemindars, at any date less than twelve years before the Permanent Settlement, are liable to be broken up on the sale of the estate for arrears of revenue, unless granted for specific purposes, or proved not liable to increased assessment on the grounds stated in Sect. 51, Reg. VIII. 1793.

Leases conveying moccurree rights need not necessarily specify the rate of rent : they frequently record the total area and total rent, or

* Sudder Dewanny Reports, Vol. I. page 102, " as no mention of a moccurree tenure occurred in an authentic document."

describe the external boundaries of the land, and mention the rent to be paid by the tenant; but documents of this sort will generally be found to bear dates antecedent to that of the Decennial Settlement; since then the practice of giving moccurree leases, except for special purposes such as the erection of buildings, &c., has fallen very much into disuse; where the grants have been made for specific purposes at fair rates, they are not liable to enhancement as long as the lands continue to be used for the purposes specified in the leases. These points are specified very clearly in Sect. 27, Reg. XII. 1841.

The right to cancel a moccurree tenure does not convey any title to oust the moccurreedar, but merely to assess his land at the discretion of the purchaser, who still retains his right of tenancy. (Vide *Sudder Dewany Adawlut*, vol. 1, 174.) It must be borne in mind, that the date of the Permanent Settlement is that on which each particular settlement received confirmation from competent authority. Although in the majority of cases this occurred on the same day with reference to properties situated in the same tract of country, yet enquiry on this point is always necessary inasmuch as there are many exceptions to the rate.

Nerick Monroosee. Fixed rates to which a title is established by inheritance. Although the term *Meeras* is commonly employed to denominate tenures at a fixed rent, yet taken by itself it conveys a title of very uncertain value, the heritage must consist of something to be inherited. If this be a lease guaranteed to the descendants of the lessee, the tenures should be more properly considered under the head of *Moccurree*, if it be a prescriptive title it should be considered under that head; it is possible that there may be an attempt to found a title on the fact of a series of undisturbed successions, the evidence to this, if not that of documents in the hands of the claimant must be obtained from the public records, or those of the zemindar; or it may be oral evidence assisted by tradition, but so many difficulties lie in the way of this sort of proof, that a *Meeras* will generally, as before remarked, prove a poor tenure unless supported by documents or prescription.

Nerick-i-kudeem. Fixed rates to which a title is established by prescription. The nobleman, under whose auspices the Permanent Settlement was completed, recorded the following observation on the right

of cultivators: " Unless we suppose the ryuts to have been the actual " slaves of the zemindars, every beegah of land possessed by them must " have been cultivated under an express or implied agreement, that a " certain sum should be paid for each beegah of produce, and no more. " Every *Abwab* or tax imposed by the zemindar over and above that " sum is not only a breach of that agreement, but a direct violation of " the laws of the country. The cultivator has therefore in such case an " undoubted right to apply to Government for the protection of his " property, and Government is at all times bound to afford him redress." This spirit pervades the whole body of law relative to the rights of the agricultural community. His Lordship again declares, " That the privilege which the ryuts enjoy of holding possession on the spots of " land which they cultivate so long as they pay the revenue assessed " upon them, is by no means incompatible with the proprietary rights " of the zemindars; whoever cultivates the land the zemindars can " receive no more than the established rent, which in most places is " fully equal to what the cultivator can afford to pay. The zemindars however may sell the land, and the cultivator must pay the rent to the purchaser." Now, although it is probable that any attempt on the part of the ryut to produce evidence of express agreement as to the terms of the original contract under which he broke up the soil, must fail, and although the nature of the implied agreement must have been dependent on so many circumstances, in which the lapse of time must have wrought such a change as to leave no trace by which to assist the formation of the judgment regarding them, yet evidence will be generally procurable as to what the rate has been, and in the absence of all proof to the contrary, it is assumed that this is what it ought to have been; and the fact of having held this rate confers on the cultivator a prescriptive title to continue to do so, and in this way a title to hold rates fixed by time and custom constitutes a good and valid tenure. Then again this title to hold at established rates, may be attached to particular spots of lands, particular villages, particular classes in a village, particular divisions of the country, or peculiar local custom. The first, and in some respects, most valuable is the right to hold particular spots of land on payment of a rent fixed by custom; the land so held constitutes what is known by the name of, Mokuddum ryuttee jote, (answering

very much to our English copyhold *) is transferable by sale, and is undefeasible as long as the rent is paid. In Central Bengal where the introduction of Indigo has raised the demand for land, and the presence of Europeans has given greater stability to the interests of cultivators, these jotes are recognized as valuable properties, and are transferred from hand to hand by sale or mortgage solely at the pleasure of the *jotedar* without reference to the zemindar, who has no claim except for his rents. In Eastern Bengal where land is more abundant in proportion to the demand, and where the system of underletting exposes the ryut to the ever varying aggressions of new farmers, if confidence in the stability of the rates is not so strong, and tenures held under prescriptive title have not the same value as marketable commodities, neither will the cultivator himself incur the risk of any extensive outlay in the formation of gardens, the excavation of tanks, and the building of houses, unless under the additional guarantee of a lease or other document. The estimation in which it is held in the market, however, does not affect the real validity of the title; a tenure under rates established by prescriptive usage is valid in Eastern Bengal as elsewhere, but there are not the same facilities for asserting it as in Central Bengal, where it has been already recognized as a transferable property.

Nerick Monza-waree. Prescriptive usage has in some places given the inhabitants of a village a title to cultivate the lands in it at the rates established for each peculiar class of soil; this title acquires its validity from the inability of the zemindar to levy more than the established rates; he sues a ryut for land which he has cultivated without entering into engagements; although duly served with a notice, under Section X. Reg. V. 1812. The cultivator in defence states, that that notice raised the rates above those of the village; the questions then to be determined are, what are the village rates, and what title the ryut has to the enjoyment of the privilege of cultivating at those rates? The first is regulated by such evidence as may be procurable; the second depends very much on local usage; the nearest approach to a general rule is, that the cultivator if not duly served with a notice to enter into fresh engagements, cannot at the end of the year be called

* Vide Vol. IV. Sudder Dewanny Adawlut, 274.

on to pay more than he paid the two preceding years, and that a cultivation of two years' standing is necessary to give him a title to cultivate at the village rates. There is an apparent difficulty, as to whether the cultivation must be of the same spot, or whether the title holds good in the event of any change, but the fact in practice is, that cultivators will never break up new or even fallow soil except at reduced rates: so that the question generally arises in the third year of cultivation, when, the particular spot of land in dispute having become a valuable holding, the zemindar wishes either to dispossess the tenant and let his land to another at increased rates, or to obtain those increased rates from the occupant, who then, in the absence of other title, claims to hold at the same rate as other cultivators in the village, or at the village rates.

The *Nerick-i-Mukuddum* is a rate established in favor of particular individuals, who claim to hold land at rates below those of the village, as a privilege of caste or office; where there is sufficient evidence to prove that this title has been previously recognised, it acquires a force from prescription which is not easily set aside, but it has been generally conceded by the zemindar rather than admitted by Government, or the Courts; but still in practice it will be found, where there are Rajpoots in the same village with Goallas, Keorás, and Chamars or other low-caste men, that they hold their lands on more favorable terms than these latter; the alleged reason is, that the Rajpoot cultivator is compelled to employ servants, who see the whole of the labor is performed by the lower caste cultivators with their own hands. It has already been remarked, that this title must be recognised with caution.

The *Pergunnah-waree Nerick* is resorted to, to check the *Mowza-warree Nerick* in cases where the latter cannot be determined by evidence, or when the proper assessment of a village hitherto held at an inadequate rent requires re-adjustment. It is the prevailing rate in the *pergunnah*, a well known revenue division of the country.

The *Bundooobustee Nerick* is the rate recorded by an officer deputed under Reg. VIII. 1822, to effect the settlement of an estate as the proper *Nerick* of the place; it ought to be either a mere record of the prevailing rates fixed with reference to the various titles under which the different cultivators hold their land, or of the rates determined by

himself with due reference to the prevailing pergunnah rates. Rates thus established are under the provisions of Section XI. Reg. VII. 1822, fixed for ever, as far as concerns the ryut holding under them at the time of settlement; neither can this in propriety be questioned in the Civil Court.

Jungle-booree Nerick. The rate at which cultivators enter into engagements to bring jungly land into cultivation. These of course depend on the terms of the specific contract entered into. It may be useful to notice the various circumstances which may affect this. These are, the density of the jungle required to be cleared, the situation of the land with reference to markets, public thoroughfares or rivers, the demand for land in the neighbourhood, the means of irrigation, the quality of the soil and water, the aspect of the ground, and the healthiness of the climate.

Nayabadee Nerick. The rate at which cultivators enter into engagements to bring waste lands into cultivation; the above remarks are very much applicable to it also.

Bheetee Nerick is the rate at which land for building is let. It is generally fixed on each house, and is determined by the eligibility of site, the extent of population, and similar causes; in almost every case former payments will be the only satisfactory evidence regarding this rate.

Nerick Baghan, Nerick Phulkur. These two rates appertaining to orchards or gardens may be considered together. As some outlay is necessary for the preparation of a garden, the cultivator generally secures himself by obtaining a lease of the ground beforehand; where he fails to do this, and has no prescriptive rights in his favor, the zemindar claims some proportion of the produce; even where this is as low as one-fifth, it is disadvantageous to the ryut, as orchard land requires great care in cultivation, and yields exceedingly high returns. A grove of mango trees standing on five acres will yield four or five hundred rupees if situated near a public road; in like way the produce of betel gardens, or pawn gardens, is of such value that the highest rate of money rent, will seldom equal more than one-twentieth or twenty-fifth part of the assets. With all these rates the evidence of past payments, or the payments in adjoining fields or properties is the best guide for determining what ought to be paid in each particular case; where evidence on this head is not procurable, great caution must be

exercised in calculating a money rent from an estimate of raw produce. It will be of importance to ascertain from evidence what proportion of this produce local custom assigns to the zemindar, and then carefully to bear in mind the fluctuations of markets, seasons, price, and other points before noticed in the discussion on money rents.

Nerick-i-Deh. In parts of the country where the villages are built in rows or streets, and the houses clustered together, the value of all lands is somewhat affected by their degree of proximity to the village, but the fields in the immediate vicinity of the houses are of peculiar value from the facility with which they are guarded, and the opportunity afforded of irrigating these from the village wells. These are called Deh lands, and are devoted to the more valuable crops, poppy, spices, tobacco, sugar-cane, and all others which require irrigation and watching. The rates on these are proportionate to the advantages conferred by position, and will generally be found recorded in the village accounts; where these are not procurable, nor appear trustworthy, evidence of former payments on cultivators of similar land will afford some guide as to what the rates ought to be. In adjusting a money rate, reference must be had to the amount of labor bestowed in raising and gathering the crop, more particularly the latter, when it consists of opium or spices.

Nerick Muteherfa. In Behar, the cultivating classes do not pay ground rent for the spaces occupied by their houses; this however is levied from artizans, and shopkeepers and other residents not cultivators, under the head of Muteherfa. In Bengal the word *Chandnee* is more commonly used for this peculiar class of rent; local usage, village accounts, and evidence of past payments, will afford the best guide in deciding claims regarding this rent. In adjusting a money rent, it is necessary to consider what are the advantages obtained, and what is included in the rent, such as a right of wharfage on the banks of a River, of frontage in a Bazaar, or of participation in the commercial privileges of the place in a large town; all which will affect the rent materially, and will, under peculiar circumstances, raise it to nearly 500 or 1,000 per acre.

Nerick-i-Bhatai, is the rate or proportion at which the rents of land are levied in kind. Where the simple word *Bhatai* is used, the produce is usually divided into two equal shares, of which one is

appropriated by the tenant, the other by the landlord ; it is occasionally, however, levied in other proportions, such as one-fifth and four-fifths, two-fifths and three-fifths, one-third and two-thirds, or such other proportions as may be determined on.

Nerick-i-kutnee. This is rather a legal term than an absolute rate. Where disagreement exists as to the terms of divisions, or when the landlord neglects to assess the standing crop, the cultivator cuts it at his own risk, and if he fail to satisfy the landholder, the latter brings an action at the *Nerick-i-kutnee*, stating that the crop having been cut he had no means of assessing it, and therefore sued the cultivation at the full value of an average crop ; this value is generally laid at twenty maunds per beegah of the standard of Akbur. It becomes necessary to determine through whose neglect no assessment was made, what the terms of cultivation were, what the actual produce was, what the Bazaar rates were at the time of cutting, and what the expenses were ; the titles advanced by the cultivators may be just the same as in the case of money rents, evidence of the same nature may be resorted to.

Nerick-i-kunkoot. This again is a legal term. The landlord in order to save the expense of watching the crop from the time of its cutting to its being thrashed, assesses it when standing, obtains from the cultivator an acknowledgment of the assessment mutually agreed on, and by this the accounts are subsequently adjusted. Where disputes subsequently arise regarding this, an action is brought, *Kunkoot ke nerick se*, or *Kunkoot ke hisáb se*, to determine what the assessment was, or ought to have been ; if no written acknowledgment was entered into, or if it is disputed, oral evidence regarding the particular crop or those round it is generally all that is procurable.

Nerick-i-khaneh shumarree. Where cultivation extends over hills or places not easily accessible for purposes of assessment, revenue is assessed on the families or the males of each family ; this mode of taxation is rapidly disappearing. It may be observed here, that tenures which lapse by dereliction or through default of heirs, revert to the zemindar ; if a cultivator dies heirless, the zemindar may dispose of his tenure to the best advantage to himself, but if a new cultivator obtain possession without any stipulations as to rent, and retain it for two years, he cannot be ousted, but his title is not to hold the land at

the same rates as the former tenant, but at the village rates. If a ryut be absent from his cultivation, he may continue his title to it by payment of the prescribed rent, but should balance of rent remain unpaid at the end of any year, the zemindar may proceed against him under the provisions of Sec. XV. Reg. VII. 1799, and having obtained a decree oust him, under Sec. XVIII. Reg. VIII. 1819.

Nerick-i-Bunkur is the rate paid for the privilege of cutting wood, grass, or similar products from particular localities ; it is occasionally paid in the shape of rent for the ground occupied, occasionally in that of the price of the articles carried away. Generally a particular tract of country yielding Bunkur produce is let at a fixed rent to a farmer, who levies imposts from the men who carry away the different products, according to the quantity which they take ; the first description of rent will be dealt with simply as any other farm, the second affecting the interests of the ryuts will depend very much on local usage ; although it is doubtful whether this can ever have been so completely established as to constitute any prescriptive right to a fixed rate. In fact it is generally levied rather as a toll at the different points of export than as rent, and it does in reality differ from rent, as being rather the price of the article produced, than merely the lease of the hire of the land, although this latter is included in the price, the land being occupied in the production. Nature herself is the labourer, and the fortunate landholder is permitted to enjoy the fruit of her toils ; but Nature contenting herself with production, has left the appropriation or reaping to man ; and generally speaking, the labor of collecting and conveying spontaneous produce is far greater than of reaping a crop which is the result of cultivation ; and this labor which has before been mentioned as calculated to affect rent, will materially influence that of land yielding Bunkur produce. The two distinct operations of collecting and conveying, are frequently performed by different classes of labourers ; where this is the case, the landlord avails himself of the occasion of the transfer from one to another, as a convenient opportunity of collecting his rent, and perhaps of taking some from each party. The woodcutter brings his log of timber or bundle of bamboos to the purchaser at the outlet of the estate, whatever it may be, the ghat or pass in a mountainous country, the river or roadside in a forest, or an alluvial chur ; the purchaser takes it from each individual, paying some

portion of the price to the landlord, and adding a small sum on his own account for the privilege of storing his purchases on the property until they are completed ; the rent here includes the hire of the soil, the value of the product, and in addition to it is charged a rent for the ground on which the collected store is deposited, pending transit. Bunkur literally signifies wood or belonging to the forest, but mineral products, generally speaking, found in woody places, all go to make up Bunkur rents ; that is to say, they form part of the assets on which the rent of a Bunkur farm is calculated, such as chalk, coal, stones, chunam : these again have separate subdivisions, but the principle on which the rent is to be calculated is the same. With reference to the two latter, labour is bestowed not only in the collection of the article, but in its preparation for the market ; this preparation consists in the reduction of the bulk, and the landlord compensates himself for what he loses in not taxing it in bulking by participating to a certain extent in the increased value of the article after it has undergone preparation. For the manufacture of the limestone into lime he makes a charge for the wood consumed in the heating of the kiln, and for the kiln itself ; as he has the power of dictation, he generally prefers avoiding the risk of failure from injudicious heating, by taking the kiln according to the quantity of lime which it is estimated to yield rather than wait for the lime itself, hence this rate is generally levied on the kiln at so much per hundred maunds. Bunkur rates being generally levied as a toll, disputes regarding them seldom come before the Revenue Courts, except when disputes arise between the landholder and farmer, and these will of course depend on the terms of the lease. A Bunkur ryut is seldom a resident on the estate ; in fact, Bunkur estates are generally unfitted for continued residence ; the want of scientific knowledge by which to avail itself of the treasures of the hill and forest have served to depreciate the value of Bunkur property in the estimation of natives far too low : as the products become of more importance, laws will become necessary for the protection of each peculiar class, instead of their being left now in indiscriminate confusion, all classed under one unmeaning title, Bunkur.

Nerick-i-churhaie, the rate of rent paid for the right of pasturage in extensive forests on waste lands. Trials will come before the Revenue Courts, rather regarding the right to levy, than the rate

at which the levy is to be made. In deciding cases, care must be taken lest the plaint, and the whole proceedings be fictitious, and lest there be collusion, the object being to establish a title by obtaining proof of having collected, or having been declared entitled to collect, or with a view of evading the resumption laws.

Nerick-i-julker, is the rate of rent paid for the right of fishery in particular waters; it is levied generally at so much a boat, and is modified according to the description of net used. Local usages prevail with reference to this rent, differing in almost every river, and every bend of each river; but litigation is less frequent with reference to these than perhaps any other class of rents.

Engagements to cultivate under a lease become void with the expiry of the lease itself; but if the zemindar instead of ousting the ryot at once, serve him a notice for the enhancement of his rents under the provisions of Reg. V. 1812, the service of the notice brings the case under the jurisdiction of the Revenue Courts, and if a balance remain unpaid at the end of the year, the zemindar cannot plead this balance as giving him a right to oust the cultivator under the provisions of Section X. Reg. IV. 1840, before the Magistrate; but having brought himself under jurisdiction of the Revenue Court, must sue for it and obtain a decree under Section XVIII. Reg. VIII. 1819. The occupancy for the year without opposition by the zemindar would appear to give the tenant a title from sufferance, which is defined by Blackstone: "Where one comes into possession of land by a lawful title, but keeps it afterwards without any title at all, as if a man takes a lease for a year, and after a year is expired continues to hold the premises without any fresh lease from the owner of the estate:" and the reason is, because the tenant being once in by a lawful title, the law (which presumes no man in the wrong) supposes him to continue upon a title equally lawful, until the owner of the land prove it to be wrongful. Now the Magistrate can only support the zemindar in the exercise of undoubted rights; he by his own neglect suffered a certain cause for doubt to supervene, and must clear it away by suing for any balance of rent as by his notice may remain due at the end of the year; at the end of the second year the cultivator has acquired a title of settlement since the expiration of his lease.

A resident cultivator considering himself aggrieved by ejectment, has a right to a trial of his grievance. If the ejectment be accompanied with violence he may apply for redress to the Magistrate, who besides inquiring into the violence, will on plaint being made under Reg. IV. 1840, call on the zemindar to prove his claim to the exercise of the right of summary ejectment, and should it appear that the cultivator had no claim, he will permit his summary ejectment; but should the case appear to be of the nature of those above described, he will either maintain the cultivator in possession, or stay the zemindar from disposing of the lands for a fixed period, within which he will instruct the cultivator to bring an action to try the ejectment under the 5th clause, Section XVIII. Reg. VIII. 1819, and the construction put upon it by the Circular Orders of the Dewannee Adawlut, dated 15th November 1833, which states that, "The declaration that it is illegal to oust resident cultivators except under circumstances, necessarily implies a remedy in case of the contravention of the rule, &c. &c."

The general laws of the country, if fully enforced, afford a degree of protection to the cultivator which is rather weakened than strengthened by a special contract or lease; even in the formation of new settlements the cultivators will be found unwilling to enter into written engagements, they have a sort of instinctive feeling that it is not their interest to do so; and they dislike the signature of the counterpart of a lease, which renders obligatory on them the annual payment of sums for the realization of which they have no security but the crop dependent on the contingencies of the season: in settlements besides the general laws of the country in their favour, they have the special protection afforded by Section XI. Reg. VII. 1822, and are well aware that if unable to assert their privileges under those general laws, that the mere possession of a pottah will not render them much stronger, but will have very much the effect of a special bond for a portion of a debt, which without affording any additional guarantee for the payment of the amount included in it, serves to throw doubt on the remainder which is excluded, and will tend to deprive them of the benefit of the protection to be derived from the general law with regard to any privileges not enumerated in it.

Notices and Descriptions of various New or Little Known Species of Birds. By ED. BLYTH, Curator of the Asiatic Society's Museum.

[Continued from p. 212, ante.]

After the first part of this* article was consigned to the press, an opportunity occurred of looking over Gould's magnificent 'Birds of Australia,' up to the nineteenth number of that work; and a few of the notes I took from it, bearing on the Ornithology of India, may here be introduced.

Among the *Falconidae*, a second species of my genus *Butaëtus** (ante, p. 174,) occurs in the *Aquila morphnoides*, Gould, P. Z. S. 1840, p. 161; and the slight enlargement and elongation of the central occipital feathers recurs in it, which I mentioned to exist in fine specimens of *B. pennatus*. *Falco hypoleucos*, Gould, (ibid.), which that naturalist considers to be the Australian representative of the Jer Falcon of the north, is very closely allied to *F. jaggur* of India, from which it only appears to differ in having a dark forehead, no trace of supercilium, and the broadly white patch on the cheeks greatly diminished. *Milvus affinis*, Gould, the common Kite of Australia generally, excepting Van Diemen's Land, appears to be quite identical with *M. govinda* of India; but in that case the cere and feet are coloured too deeply: I can perceive no other difference whatever. *Elanus axillaris* (v. *notatus*, Gould,) is certainly distinct from *E. melanopterus* of India; and a beautiful new species is figured as *E. scriptus*. I am also informed by Mr. Strickland, that the American *E. dispar* has the tail wholly white, and a smaller beak than *E. melanopterus*: so that four species of this generic form are now established. A South African specimen of *E. melanopterus*, in first plumage, presented to the Society by Lord Arthur Hay, appears to me to be identical with the bird of India, although his lordship inclines to a different opinion.

In the *Athene strenua*, Gould, we have an Owl of the largest size, yet strictly pertaining to this genus of (generally) very diminutive Owls: and the *Athene ? connivens*, (Lath.) Gould, *Ath. maculata*, (V.

* This name must yield to *Hieraëtus* of Kaup (1844); which I learn from Mr. G. R. Gray's extremely useful illustrated work on the genera of birds, seventeen numbers of which are now before me, and from these I shall have occasion to append some notes to the present paper. Mr. Gray merges *Hieraëtus* in *Aquila*.

and H.), and *Ath. boobook*, (Lath.), evidently pertain to Mr. Hodgson's genus *Ninox*.*

Caprimulgus macrurus, Horsfield, is figured as an inhabitant of Port Essington, in North Australia; and the species would seem to be the same as that which I have referred to *macrurus*, p. 206, ante: the general colour, however, would appear to be scarcely so dark as in the Malacca specimens, and I do not understand the second white mark represented upon the breast of the male. The two sexes are figured, both having the white marks on the wings and tail, but diminished in extent in the female: and looking to a series of specimens of the nearly allied *C. albonotatus*, it would seem that the females vary in this respect, many having certainly more or less of this white, which confirms Captain Tickell's statement of the sexes of this bird resembling each other. In the common small *C. asiaticus* of India, the male and female appear always to resemble; and I now suspect that this will prove to be not unusually the case in *C. albonotatus*, *C. macrurus*, and *C. mahrattensis*.†

To the genus *Collocalia*, Mr. Gould erroneously refers two species of true Swallow, allied in nidification as well as plumage to *Hirundo capensis* and *H. daurica* (v. *erythropygia*); and a third Swallow is figured by him as *H. neoxena*, which appears to me perfectly identical with a specimen of *H. pacifica*, (v. *domicola*, Jerdon,) from the Neilgherries. A new *Cypseline* genus—*Atticora*—is founded on *Hirundo fasciata*, Gm., and two or three other South American species, to which is added one Australian representative as *At. leucosternon*.‡

* This group *Ninox* is not admitted by Mr. G. R. Gray, who refers as many as forty-four species to *Athene*! I certainly consider the former to be a good division.

† It may be here remarked, that *Caprimulgus indicus* is far from being so rare in Lower Bengal as I formerly supposed; inasmuch as specimens may be often procured in the Calcutta Botanic Garden. *C. monticolus* will also probably turn out to be far from scarce when I come to discover its proper haunts, which I suspect are upon open ground. The only two specimens of the latter which I have obtained were both caught alive by bazar shikarrees. Among Sir A. Burnes's drawings is a figure of a species, (from "Lakat,") nearly allied to *C. monticolus*, but still more uniform in its colouring which approaches to sandy,—this being a tolerably sure indication of the prevalent hue of its haunts;—but if correctly figured, (and it is stated to be "natural size,") it would be a smaller bird than *C. monticolus*, having the wing but nine inches and a quarter long. A skull and feet in Burnes's collection are, however, quite undistinguishable from those of *C. monticolus*.—The Society has just received another closely allied species from Java.

‡ Mr. G. R. Gray refers *Atticora* to the Swallow group; but I have little doubt that he is wrong. Not only is the whole appearance of Mr. Gould's figure of *At. leucos-*

Acanthylis caudacuta (v. *australis*), p. 211 and note, *ante*, would seem identical with the Himalayan species, only the middle of the back is represented scarcely whitish enough, and the Australian bird is figured to have a white mark above the bill, which does not exist in the Society's Himalayan specimens: but as the nearly allied *Ac. gigantea* varies in this respect, as shewn by specimens in the Society's museum, it is evident that no importance can be attached to this slight difference.*

Cypselus pacificus, (Lath., v. *australis*, Gould,) p. 212 *ante*, from Penang, accords minutely with Mr. Gould's figure of an Australian specimen (except that the chin is not so purely white), and it may therefore be considered as rightly determined.

The *Totanus glottoides*, Vigors, is still regarded by Mr. Gould as distinct from *T. gleitii*, and is figured by him as Australian: so also is *Coturnix chinensis*, which is common in parts of India, and seems to be found through all the intervening countries into Australia; and Mr. Gould admits it doubtfully into his Australian genus *Synoicus*. To *Hiaticula nigrifrons*, (Cuv.), v. *melanops*, (Vieillot), must be referred the *Charadrius russatus* of Jerdon. *Hæmatopus longirostris* of *ternon* quite *Cypseline*, but he has distinctly represented *ten* tail-feathers, of very *Cypseline* character: whereas all the species of the Swallow group have invariably twelve tail-feathers.

Hirundo neoxena Mr. Gray identifies with *H. javanica* of Vigors and Horsfield, referring them both to *H. pacifica* of Latham; and *H. domicola*, Jerdon, will come in as another synonyme: but *H. jewan* of Sykes is considered by him to be the true *H. javanica* of Sparrman, though I suspect its true name will be *H. gutturalis*, Scop., v. *panayana*, Lath.; an identification I owe to Prof. Behn. Mr. Gray agrees with me (I may even say as a matter of course) in referring Mr. Gould's two supposed species of *Collocalia* to true *Hirundo*.

Of *Collocalia*, Mr. Gray enumerates four species, viz. *C. esculenta*, (Lin.), *C. nidifica*, (Lath.), *C. fuciphaga*, (Thunb.), and *C. troglodytes*, G. R. Gray, which last he has figured. The Nicobar species which I referred to *C. esculenta*, appears to be the *fuciphaga* of Dr. Horsfield's list, but not of Shaw; the latter approaches much nearer to *C. concolor*, (Jerdon), which last will, I suspect, bear the prior name of *brevirostris*, McClelland, *P. Z. S.* 1839, p. 155. The Nicobar species (true *fuciphaga*?) is of the same size as *C. troglodytes* figured by Mr. G. R. Gray, but has a much larger head than is represented in that figure (doubtless incorrectly), and its upper-parts are dusky-black, slightly glossed with green and purple, the lower brownish with white abdomen. The name *fuciphaga* is, of course, an absurdity: and on perusal of my remarks on the composition of the edible nests (p. 210, *ante*), our contributor Mr. Laidley remarked to me, that he had arrived at the same result from chemical analysis, which shewed the constituent elements to be those of inspissated saliva.—The Society has just received the Nicobar species from Java.

* *Ac. caudacuta* of Australia, and *Ac. nudipes* of the Himalaya, are enumerated as separate species by Mr. G. R. Gray.

Australia is distinct from the Indian Oyster-catcher, which has a much longer bill, and I shall describe it by the name *H. macrorhynchus*. *Himantopus leucocephalus*, Gould, of Australia and the Malay countries, occurs also in India, but is much rarer than *H. candidus*. *Nettapus coromandelianus* of Australia, as figured by Mr. Gould, agrees exactly, both in size and markings, with the common Indian species. In the genera *Hylacola* and *Calamanthus* (*Praticola*, Sw., 1837), a very close approach is shewn to the Indian *Pellornium* (vide *J. A. S.* XIII, note to p. 372); but the latter seems sufficiently distinct, being also a larger bird, with a longer bill than in its Australian affines.* Lastly, I shall only notice *Sericornis*, Gould, exemplified by his *S. citreogularis*, as a generic type to which a common Himalayan species (sent by Mr. Hodgson with the name *Tarsiger chrysæus*), would seem to appertain.† The latter may be described as follows :

Sericornis (?) *chrysæa*, (Hodgson.) Length about five inches and a quarter, of wing two and three-quarters, and tail two and a quarter, its outermost feathers a quarter of an inch less : bill to gape three-quarters of an inch, and tarse an inch and one-eighth. Male having the entire under-parts, shoulder of wing, more or less of the scapularies, the rump, and basal three-fourths of all but the middle pair of tail-feathers, brilliant yellow ; the last being also yellow at base, and there is a narrow supercilium of the same : rest of the tail, and the lores and ear-coverts, black : alars, and their larger coverts, blackish, narrowly edged with dull yellowish ; and the head and back are dusky olive, with dull yellowish-green margins to the feathers : bill dark above, below pale ; and the legs pale. In younger specimens, there is less yellow on the scapularies and wings : and the females have the whole upper-parts uniform dark greenish-olive, with merely a more yellowish shade over the rump ; the under-parts sullied yellow ; and tail dusky-olive, marked as in the male, but with considerably duller yellow. The young of the year differ from the female in being spotted above like a young Robin.

Mr. Hodgson informs us that this bird "inhabits the central hills of the Himalaya ; is shy, solitary, and bush-loving, constantly descend-

* In the sequel (p. 600), I have added a new genus to this group,—*Malacocincla*, nobis.

† Other species of *Sericornis*, however, figured by Mr. Gould, render this generic identification more doubtful.

ing to the ground from its perch : it feeds and breeds on the ground, making a compact saucer-like nest of moss. Eggs verditer." In form it comes very close upon *Calliope*, and approaches still nearer to *Cyanecula*, from which its principal structural distinction consists in the more rounded form of its wings and tail, and the somewhat reduced degree of firmness of its plumage ; besides which the yellow colouring is a character of the present group. The wings have the fourth, fifth, and sixth primaries subequal and longest, and the first about half their length.

Referring again to the first part of this paper (p. 182, *ante*), it may be remarked that Mr. Jerdon now considers the *Scops sunia* and *Sc. pennata* there described, to be different phases of plumage of the same species. Until I obtain further data, I shall refrain from adding to what I have already stated on the subject ; but may remind the naturalist reader, that I have described three distinct states of plumage of the *Sc. sunia*,—viz. the first or nestling garb, an intermediate dress in both sexes, and the mature livery which is almost uniform deep chesnut-ferruginous : so that the variation to grey would certainly not appear to be dependent either on age or sex.*

Of *Syrnium niviculum* (p. 185), a second specimen has been obligingly presented to the Society (with numerous other valuable bird skins), by Mr. L. C. Stewart, of H. M. 39th Foot, believed to be from the Western Himalaya, where many of that gentleman's specimens were procured. It completely establishes the species, as distinct from *S. aluco* ; and it differs from the specimen already described in the general darker tone of colouring of its upper parts, occasioned by the greater predominance of the fuscous ground-tint, while the scapulary spots are whiter, and there is also an intermixture of white on the facial disk, and the lower parts are less tinged with fulvescent. It is probably a male, and the other a female.

With respect to the species of *Brachypternus*† (p. 194), I find that a third occurs in the Scindian representative of the common *Picus* (*Br.*) *aurantius*. With the dimensions of the latter, it differs from it in the reduced quantity and intensity of the yellow on the upper parts,

* Mr. G. R. Gray identifies *Sc. pennata* with the European species, and adopts *Ephialtes*, K. and B., as the generic name.

† Lord A. Hay thinks, judging from recollection, that *P. micropus* is the common species of S. India, *P. bengalensis* apud Jerdon.

which is also quite free from any orange tinge, and the whitish markings on the wings are much more developed;—distinctions which hold true in both sexes. As I have elsewhere described the species, the present indication of it will here suffice.

I am also informed that the *P. badius* apud Jerdon, of S. India, differs alike from the true *P. (Micropternus) badius* of the Malay countries, and from *P. (M.) phaeiceps*, nobis, of Bengal, Nepal, Assam, and Arracan. Accordingly, we now distinguish three species respectively of the subgenera *Micropternus*, *Brachypternus*, and *Tiga*; which certainly confirms the propriety of these groups being thus separated.*

Centropus (p. 202). Lord Arthur Hay has obtained a very splendid bird of this genus from Malacca, which is evidently the *Cuculus bubutus* of Raffles's list, stated to be "not much less than two feet in length;" but it is not Dr. Horsfield's Javanese bird, described to be eighteen inches and a half long (*Lin. Trans.* XIII, 180), which is precisely the length of the Indian species (vide *J. A. S.* XI, 1099). This fine species may be appropriately termed

C. eurycercus, A. Hay: being particularly remarkable for the great breadth of its tail-feathers, each of which measures two inches and three-quarters across. Length about twenty-three inches, of which the middle tail-feathers measure half, the outermost being four inches and three-quarters shorter; wing eight and three-quarters; bill to gape nearly two inches (in a straight line), and three-quarters of an inch in vertical height, being much larger than in *C. philippensis*; tarse two and a quarter; the long hind-claw but an inch. Colour as *C. philippensis*, but the back and wings are of a brighter and more chesnut brown, and the tail is glossed with steel-blue instead of green. *C. philippensis* and *C. Lathamii* are also met with at Malacca, and both appear to be much commoner there than the present species. I have also lately received certain information of a *Centropus*, of the alleged size of *C. bengalensis*, (and doubtless that species,) occurring in the Calcutta Botanic Garden. My informant brought me *C. Lathamii* from the locality, and stated that he had often there observed the minute species, but was unaware

* Mr. Jerdon writes me word—"The *Picus moluccensis* figured in the *Planches coloriées* is certainly distinct from that of Hardwicke and Gray: the former being of course true *moluccensis*, and I suspect the same as your *canicapillus*."—A Javanese specimen just arrived is very doubtfully distinct from that of S. India: and I may add, that in Dr. Cantor's Malayan collection is a superb fourth species of *Tiga*.

of its being at all a desideratum. It is therefore probable that I shall soon obtain specimens. (*C. bicolor*, Lesson, has just been received by the Society, with the specific name *celebensis*, probably of Temminck. It is a very distinct species.)

We may next pass to the paper on *Leiotrichanæ*, &c., and *Fringillidæ*, Vol. XIII, pp. 933 *et seq.*, to notice some further identifications which have occurred to me.

Leiothrix furcatus, v. *sinensis*, must be designated *L. luteus*, (Scopoli).

Siva occipitalis, nobis, (p. 937,) makes so considerable an approach in plumage and general character to the *Yuhina* ? *flavicollis*, Hodgson, *As. Res.* XIX, 167, that their near affinity is indisputable; and this brings the latter species, for which Mr. Hodgson now proposes the generic name *Ixulus* (vide sequel, p. 562), within the confines of the group of *Leiotrichanæ*, where the slender form of the bill approximates it to *Minla*, from which it is barely separable, and it thence carries on the series of affinities to *Yuhina* and also to *Myzornis* (*J. A. S.* XII, 984). The *Siva occipitalis*, however, differs greatly in the form of its bill from *Ixulus flavicollis*, that of the former being fully as stout as in *Propæarus*, in which group it might very well be classed: and as regards other distinctions, the crown is tinged with rufous, the slightly reverted crest is less developed, the narrow blackish streak from the corners of the mouth does not occur, the under-parts are much more sullied or less whitish, and the wings are longer; yet, notwithstanding these various differences, the resemblance is at first sight not inconsiderable. It may be added, that the name *Certhiparus*, which Mr. Hodgson wishes to substitute for *Minla*, is objectionable on other grounds than as concerns the mere alteration; it having been previously applied (apparently by the Baron de la Fresnaye) to a group of New Zealand *Meliphagidæ*.*

* Vide G. R. Gray, in Dieffenbach's 'New Zealand,' II, 189 (1843). This naturalist, by the way, reunites the whole of Mr. Hodgson's divisions of *Leiotrichanæ* under *Leiothrix*; and he gives four species of *Pteruthius*, adding as a fifth the *Piprisoma agilis*, which has no sort of relationship to the group. The male of *Pt. rufiventer*, nobis, is beautifully figured, but the sexes of this species are so different, that the female should certainly have accompanied it. As for his mixing up the *Leiotrichanæ* birds with *Pardalotus*, *Pachycephala*, &c., I am quite of Mr. Strickland's opinion, that the group *Pachycephalinæ* so formed is an extremely forced and unnatural one; and that such is usually the case, when too little attention is paid to the geography of genera thus brought together.

The *Parus* (?) *minutus*, Jerdon, (p. 944,) is probably identical with *Eipornis zantholeuca*, Hodgson, XIII, 380.

P. nuchalis, Jerdon, is a new species from Southern India. Length about five inches, of wing two inches and three-eighths, and tail two inches; bill to gape nearly half an inch, and tarse five-eighths. Colour black above, as also a broad mesial stripe from throat to vent; cheeks, sides of neck, and of the breast and belly, with the under tail-coverts, white; a white spot also at the nape, as in *P. ater*, &c., a band of the same across the wing, and the tertiaries very broadly margined externally and tipped with white; outermost tail-feather white, except its inner border, the next with the outer web and contiguous portion of the inner web white, and the third with the outer web white at tip and for most of its basal half: bill black; and legs plumbeous. Inhabits the Eastern ghauts.

Of *Ploceus philippinus*, (p. 944,) Mr. Strickland writes me word, that the Indian bird, and not Dr. Horsfield's Javanese species, is the true *Loxia philippina* of Linnæus. It extends its range to Malacca.

Passer montanus (p. 947,) proves to be the more common species of Sparrow in Arracan generally, about 60 of this species occurring to one of *P. domesticus*, var. *indicus*: Lord Arthur Hay has also received it from Malacca;* and hence a doubt arises whether it be not the Siamese Sparrow mentioned by Crawford. *P. montanus* is also the common Sparrow of Afghanistan.

The division *Gymnoris*, Hodgson (p. 948), I shall now adopt, on the authority of a second species sent on loan by Lord Arthur Hay, and believed to be from S. Africa.

G. superciliaris (?), A. Hay. Length about six inches and three-quarters, of wing three and three-quarters, and tail two and a half; bill to gape eleven-sixteenths of an inch, and tarse three-quarters. Plumage as in *G. flavicollis*, with the same yellow spot in front of the neck; but there is no maroon colour on the shoulder of the wing, the anterior whitish bar crossing the wing is narrower, there is a conspicuous whitish supercilium, and the dorsal feathers have the terminal third of their inner web dull dusky-brown, imparting somewhat of the streaky appearance common to most Sparrows: the crown and upper portion

* I hear that a Sparrow of some species, most probably this one, abounds in Singapore.—The Society has just received *Ploceus philippinus* apud Horsfield from Java.

of the ear-coverts are dark brown, contrasting strongly with the whitish supercilium: bill formed exactly as in the other species.

To *Amadina maja*, (p. 949,) should have been added, as a synonyme, *Loxia leucocephala*, Raffles. *A. acuticauda*, Hodgson, is the *Loxia molucca*, Lin., and will therefore range as *Amadina molucca*. Specimens from Malacca are perfectly identical in species with those procured in Nepal by Mr. Hodgson.*

For *Erythrospiza* (p. 952), must be substituted the prior name *Carpodacus* of Kaup: and for *Corythus*, *Strobilophaga* of Vieillot.

Carduelis caniceps (p. 955). The Afghan specimen described, was in summer aspect of plumage, when the winter edgings to its feathers had been cast. Its length should have been printed *five* inches and three-quarters. One from the western Himalaya, in winter garb, is rather smaller, agreeing in length of wing with Gould's figure, and the plumage has a browner tinge, less relieved with white on the fore-neck and breast than in the Afghan summer specimen, or than in *C. communis*; but the colour is much less dark than in Gould's figure, the red surrounding the base of the beak is also much less developed, and there is no black streak passing backward from the eye.

An oriental species of *Ligurinus*, or Greenfinch, exists in the *Loxia sinensis*, Lath., founded on the *Verdier de la Chine* of Sonnerat. It agrees in size, and in the Goldfinch-like marking of the wings, with *L. xanthogrammicus* of the Andes.

To the species of Bunting enumerated in pp. 957-8, may now be added

E. melanops, nobis. „Length six inches, of wing two and seven-eighths, and tail two and five-eighths; bill to forehead seven-sixteenths, and tarse three-quarters of an inch. Head, neck, throat and breast, dull green, paler below, and a little streaked with dusky on the crown; lores, chin, and around the eyes, black; belly and lower tail-coverts sulphur-yellow, the flanks greenish with dusky streaks: scapularies and inter-scapularies rufescent, with a black central streak to each feather;

* Lord A. Hay writes me word—"I have specimens of *Amadina punctularia* v. *nisoria* from Malacca, and they seem distinct from our Indian bird; being much lighter-coloured, and the markings seem differently formed."—Should they prove distinct, the Indian species would perhaps rank as *Am. lineoventer*, (Hodgson:) but I remember comparing Malayan with *Bengal* specimens some time ago, and observing no difference between them.

the wings blackish, each feather margined with rufescent, palest at the tips of the greater and second range of coverts: rump plain rufescent-greenish: tail dusky, with the terminal two-thirds of its outermost feather white, except the final third of the narrow outer web; and about a third of the inner web of the penultimate feather is also white, obliquely separated: bill dusky, the lower mandible whitish except at tip; and feet pale. From Tipperah, whence a fine specimen has been presented to the Society by M. Courjon. This can hardly be the male of *E. sordida*, *J. A. S.* XIII, 958.

It may be that I was wrong in referring a Peshawur female in the collection formed by the late Sir Alexander Burnes and Dr. Lord, to the *E. icterica* of Central India, in XIII, 957; for both sexes of the Peshawur bird are figured in a drawing made under Sir A. Burnes's superintendence; and though the specimen has certainly every appearance of being the female *E. icterica*, the male is not represented, to have any distinct rusty tinge on the head, which is nearly concolorous with the back, except that the pale yellow hue of the under-parts is made to surround the ear-coverts, and thence to ascend on the crown, posterior to the eye, so as to divide the brown of the crown from that of the occiput. Should it prove to be a distinct species, and not merely *icterica* represented indifferently, it might bear the name *E. personata*.*

The following is a remarkable genus, the affinities of which have puzzled me a good deal, but (now that the Society's specimens have been mounted, and I can judge better of their characters,) I incline to think, with Mr. Hodgson, that it is really related to the Larks, though tending to assume the character of some of the *Crateopodinae*, as *Pellornium* and its allies, yet without being truly affined

* Since writing the above, Mr. Stewart has favored us with many specimens of *E. icterica* from the vicinity of Agra, where the species appears to be very common; and the females seem to me to be decidedly identical in species with Burnes's Peshawur female, though the back is less rufescent. Burnes's specimen is, however, in old and worn plumage, whilst the Agra specimens have their feathers newly put forth.

I may likewise notice here, that Lord Arthur Hay has obtained *E. Lathamii*, male and female, from Hong Kong; the species certainly identical with the Indian one.

These, and all the other Indian Buntings which I know of, pertain to the division *Euspiza* of the Prince of Canino, at least according to the classification of Mr. G. R. Gray, which I am not altogether satisfied with. The type of *Euspiza* is *Emb. melanocephala* of Scopoli; which is distinct enough in the form of its beak.

to the latter. Mr. Hodgson terms it "a most interesting form, tending to relieve the insulation of the *Alaudinæ*."

Heterura, Hodgson. "Bill moderate, strong, compressed, straight, but with the culmen and compressure curved, and *gonys* ascending; its base clad with rigid plumes as far as the advanced *nares*, and the tip for the most part decidedly inclined and notched; *tomix* scarpt and trenchant: gape wide and hispid. Wing short, hardly passing the base of the tail, but *Alaudine* in all its details; the first and fifth quills equal, and somewhat shorter than the second, third, and fourth, which are longest; centrals notched; the tertiaries equal to the primaries. Tail rigid, somewhat gradated from sides as well as centre, and the separate plumes possessing the divaricate structure, with acutely wedged or hastate points. Legs and feet strong, ambulant: tarse plus the middle toe and nail, strongly scutellate to the front, smooth and cultrated to the back. Toes medial, compressed: the laterals equal; the central sufficiently long; the exterior basally connected to the mid one; the hind least: nails simple, fully curved.

"*Hab.* Hills only. Not very gregarious: frequent trees, and breed and feed on the ground."

H. sylvana, Hodgson. "General aspect and colours *Alaudine*, but the body below completely striped. Above brown-black, largely margined with ruddy-luteous [on the sides of the feathers]: below rufescent-luteous, immaculate on throat, but beyond it streaked centrally with more or less wide blackish lines; a dark moustache, and pale brow: lateral caudals more or less albescent: legs fleshy-green; bill horn-colour, with dusky ridge. Length seven inches and a quarter to seven and a half: bill eleven to twelve-sixteenths of an inch; tail two and three-quarters to two and seven-eighths; closed wing two and seven-eighths to three and one-sixteenth; tarse under an inch; central toe to nail thirteen-sixteenths, hind ditto eleven-sixteenths; weight an ounce." Inhabits Nepal.*

I will next briefly review the *Nectariniidæ*, which were last taken in hand in Vol. XII, pp. 969 to 984, inclusive.

* The *Coryphideæ baghaira* (p. 961, *ante*.) is identified by Mr. G. R. Gray with *Alauda brachydactyla* Auct.; and as this constitutes the type of *Calandrella*, Kaup, the species will accordingly range as *Cal. brachydactyla*. The form is quite distinct from *Alauda*, to which Mr. G. R. Gray refers it; as any one familiar with the living bird must at once acknowledge. Mr. Gray's Indian *Alaudæ* are in sad confusion.

To commence with the genus *Arachnothera* : my *A. latirostris* (p. 982) must be referred to *A. modesta*, (Eyton, p. 981) ; and of the other species briefly described by that gentleman, who erroneously referred them both to *Anthreptes* of Swainson, the Society has now received two fine specimens from Malacca, which may be thus described :

A. flavigaster, (Eyton). Length about eight inches, of wing four, and tail two inches ; bill to forehead one and three-quarters ; and tarse seven-eighths. Colour plain olive-green above, paler below, and yellowish on the belly and under tail-coverts : feathers around the eyes, and a tuft near the angle of the jaw, brighter yellow : bill dusky, paler beneath, and the legs have probably been bright yellow. A young specimen is smaller, with the wing three inches and five-eighths long, and the rest in proportion : the plumage is less compact, but the colouring of the upper parts is brighter olive-green, and of the abdominal region much brighter siskin-yellow : in other respects it is similar.*

Nectarinia mahrattensis, (p. 978,) will bear, as its earliest specific name, that of *asiatica*, (Lath.) It is also the *Certhia mahrattensis*, Lath., and *C. saccharina* of Shaw.† The range of this species extends eastward into Arracan, where also the *N. Gouldiæ* is met with ; but not *zeylonica*, which is replaced by *Hasseltii*, as *asiatica* there begins to be by *flammaxillaris*, which last, in its turn, is replaced towards the Straits by *pectoralis*.

N. jugularis, Vieillot, apud nos, (p. 979,) is a new species, and may now rank as *N. flammaxillaris*, nobis : the length of its tail, misprinted " under half an inch," should have been given as under an inch and a half. The allied *N. pectoralis*, Horsf., is common at Malacca, and in the Nicobar islands : a specimen in spirit from the latter group measuring four inches long, by six in spread of wing.

Nect. (v. Anthreptes) phænicotis, (p. 979,) ascends so high as Tipperah ; and also certain other Malayan birds (as *Calornis cantor*‡ and *Brachypodius melanocephalus*) occur there, which do not appear to have been met with further to the west.

Nect. Phayrei, nobis, p. 1008, proves (as I formerly suspected) to

* The Society has now two, if not three, additional species of this genus from Java, which require more study than I can at present bestow on them.

† *N. strigula*, (Hodg.) is the young.

‡ Lord Arthur Hay has pointed out to me some distinctions between the Tipperah and Arracan *Calornis*, and the closely allied species of the Straits.

be *N. Hasseltii*, Tem., and is common also at Malacca. It is the *Certhia sperata*, var., of Raffles's list.

Nect. (v. Anthreptes) frontalis, nobis. Differs from the female of *N. lepida* (*v. javanica*, Horsf.,) in having the bill rather shorter; the upper parts of a richer, somewhat darker, and more aureous, olive-green; and the lower parts greenish-grey, without any yellow: the throat, and cheeks especially, inclining to be cinereous: the frontal feathers alone are scale-like, and of a brilliant steel-green. Length about five inches, of wing two and three-eighths, and tail two and one-eighth; bill to gape three-quarters of an inch; and tarse nine-sixteenths. From Singapore.

Dicæum chrysochlorum, nobis, p. 1009, extends its range southward to Malacca.

D. erythronotum, p. 983, bears the prior name of *cruentatum*, (L.)*

D. Tickelliae, nobis, is the *Certhia erythrorhyncha*, Lath., a name, however, which is too inaccurate to be retained. Young birds, when they leave the nest, have the beak of a flesh-red colour, except just the tip; and a specimen in this state is figured among Buchanan's drawings, with the reddish colour of the bill exaggerated; and it was probably upon a copy of this very drawing that Latham founded the species. Being the *Nectarinia minima* of Tickell (not of Sykes), it might therefore be termed *Dicæum minimum*, (Tickell). The range of the species extends into Tipperah and Arracan.

D. ignicapillum of Eyton is the *Prionochilus percussus*, (Tem.) Strickland: and in form and colouring it bears much the same relationship to *Piprisoma agilis*, (Tickell) nobis, XIII, 395, that the bright-coloured Malayan *Dicæa* do to the dull-coloured species which alone inhabit the peninsula of India. To this genus *Prionochilus*, Str., *P. Z. S.* 1841, p. 29, are referred the various Malayan species which M. Temminck has strangely classed in *Pardalotus*, as his *P. thoracicus* and *P. maculatus*, in addition to the *percussus*: and the so-called *Pardalotus pipra* of Lesson's *Traité* (stated to be Himalayan), upon which the latter naturalist has since founded his *Idopleura*, turns out to be

* Dr. Horsfield informs me, in *epistolâ*, that the Javanese species which he referred to *cruentatum* is distinct from the Bengal one, or true *cruentatum*. It is probably, therefore, one the Society has just received from Java, which has the head, neck, throat, breast, whole inter-scapularies, rump, and upper tail-coverts, *scarlet*, wings and tail blue-black, and lower parts pale ashy, except the under tail-coverts which are white. *D. cruentatum* is common at Malacca.

South American ; which satisfactorily disposes of all the Asiatic species that had been assigned by authors to the very peculiar Australian genus *Pardalotus*, warranting and confirming our suspicions in other instances, wherein the French naturalists more particularly have strangely inclined to disregard some of the most striking exemplifications of the geographical limitation of particular forms.

Two well marked species of *Prionochilus* are now before me, which may be described as follow :

1. *Pr. percussus*, (Tem.): *Dicaeum ignicapillum*, Eyton. Length about three inches and seven-eighths, of wing two inches to two and a quarter, and tail an inch and a quarter ; bill to gape seven-sixteenths, and tarse half an inch. Colour dull lavender-blue above, the lower parts bright yellow, passing to whitish on the lower tail-coverts ; a large igneous-red spot on the vertex, and another in the centre of the breast ; and a white streak from the side of the lower mandible, divided from the yellow of the throat by another of the same colour as the upper parts. Bill black above, more or less whitish beneath ; and legs lead-coloured. Mr. Eyton describes the female to be ashy above, with the under-parts yellow irregularly streaked with cinereous ; and a red spot on the vertex. The young are olive-green above, paler below ; and it is doubtful, from a specimen before me (which has advanced in its moult), whether there is either coronal spot, or more than a trace of one, or of yellow on the under-parts, in its first plumage. From Malacca.

2. *Pr. thoracicus*, (? Tem.) The appropriateness of the name leaves little doubt of this species being properly identified ; and it is not unlikely that *Pardalotus maculatus*, Tem., refers to the female or the young. Length four inches and a quarter, of wing two and three-eighths, and tail an inch and a quarter ; bill to gape half an inch, and tarse rather more. Head, neck, breast, and throat, black, with an igneous-red spot on the vertex, and a very large patch of the same on the middle of the breast ; wings and tail also black, some of the feathers slightly margined with olive ; back greenish-yellow, brightening on the rump, and becoming vivid yellow on the upper tail-coverts, and on the shoulder of the wing ; axillaries, and fore-part of the under surface of the wing, white ; and the remainder of the lower parts yellow, tinged with olive on the flanks. A presumed female has the entire upper parts olive-green, with an igneous coronal spot, less red than in the

male; a whitish streak from the base of the lower mandible, separated by an olive-green streak from the slightly yellowish white hue of the middle of the throat; and the under-parts yellow, brightest along the centre, and streaked laterally with olive-green; lores whitish, and the axillaries and under surface of the wing white, as in the male. A presumed young male is olive-green above, the crown ashy, with a central spot of olive-green; middle of throat white, its sides ashy, with no decided white streak from the base of the lower mandible: the lower parts are yellow, mixed with olive-green, and having an indication of the red pectoral spot of the adult male. Also from Malacca. The mature male here described is in the collection of Lord Arthur Hay.

The curious species described as *Pachyglossa melanozantha*, H., in *J. A. S.* XII, 1010, is thus characterized by Mr. Hodgson:

Pachyglossa, H. "General structure of *Myzanthé** (*J. A. S.* XII, 983), but much less delicate. Bill conspicuously short, thick, conic and blunt, with the gonys ascending strongly; yet typically denticulate on the tomial margins. Tongue as long as the bill, thick, fleshy, with cartilaginous bifid tip. Wings with the first quill very minute and spurious: the three next subequal and longest. Legs and feet as in *Zosterops*, strong: tarse to sole just plus the middle toe and nail. Toes short, depressed, unequal; the fores much basally connected; the hind smallest, with or without the nails: nails very falcate, stout, equal.

"*P. melanozantha*, mihi. Length five inches; bill seven-sixteenths; tail one and three-quarters; wing under three inches; tarse nine-sixteenths; central toe and nail the same; hind three-eighths of an inch. Blue-black, paler below, and a broad white stripe passing from chin to breast, whence to the vent inclusive is rich yellow. Alars and caudals dusky. The extreme caudals with a large white spot near the tips inside. Bill dusky-blue, with fleshy base. Legs plumbeous. Female duller-hued, and more or less shaded with olive.

"These birds are peculiar to the hills. They are shy, and make ingenious pendulous nests, like the *Myzanthé*. Their food consists of small insects and viscid berries, which latter they swallow entire. The upper mandible is (typically) denticulated."

As many as six generic forms certainly require to be distinguished in this *Dicaeum* group, which are as follow:—1, *Myzomela*, exemplified by *M. sanguinolenta* and other Australian species; 2, *Dicaeum*, as *D.*

* Unfortunately, this name too closely resembles *Myzantha*, of the *Meliphagidae*.

cruentatum, *D. concolor*, *D. chrysochlorum*, &c. ; 3, *Myzanthæ*, Hodg., ante, as *M. hirundinacea* of Australia, and *M. ignipectus* of the Himalaya ; 4, *Pachyglossa*, Hodg., ante, *P. melanozantha* ; 5, *Piprisoma* (XIII, 314), *P. agilis* ; and 6, *Prionochilus*, ante. The three first differ chiefly in the degree of elongation of the bill,* and the two last are also allied together ; and they combine to form a natural and satisfactory group.

Of the remarkable form noticed as *Myzornis pyrrhoura* in XII, 984, I find also the following description by Mr. Hodgson :

Myzornis, H. "General structure of *Yuhina* (*As. Res.* XIX, 165), but slighter. Bill moderately slender, more or less cylindric, and arcuate with both tips down ; the upper conspicuously longer, and furnished with one sharp tooth : nares lineo-lunate, typically large and soft : wings, tail, and feet as in *Yuhina* ; but the feet stronger, and the wings and tail more feeble. Tongue brushed. Hab. Northern and central hills [of Nepal.]

"*M. pyrrhoura*, mihi. Bright parrot-green, more or less merged in rusty on the throat and vent. Outer margins of caudals, and of mid-alars, fiery-red, or carmine : wings tipped with white. Lores black, and black streaks on the crown. Legs fleshy : bill black. Length five inches and a half ; bill eleven-sixteenths ; tail one and five-eighths ; wing two and seven-sixteenths ; tarse fifteen-sixteenths ; central toe and nail five-eighths ; hind nine-sixteenths. *Remark.*—These birds have the manners and general structure of *Yuhina* : but they want the Bulboul-like crest common to all the species of that type : their more slender bill is unidentate only, and their tarse is longer, being a third plus the middle toe and nail ; it is also stout, and quite smooth. We may here add, that our *Sibia* is another truly meliphagous form, proper to these hills."

Yuhina, Hodgson, since termed by him *Polyodon*, is re-defined as follows, and a third species described ; the *flavicollis*, passim, being removed, and regarded as a distinct type, *Ixulus*.

"Bill moderate, much depressed as far as the large nares, compressed beyond. Tip of the upper mandible inclined, with three [minute] teeth on each side : gape bristled, reaching to the eyes : brows soft. Nares large, fossed, membranous ; the aperture lunated

* This elongation of the bill is, I suspect, merely further carried out in *Drepanis*, Tem. v. *Melathrentus* (in part), Vieillot.

by the nude soft membrane. Tongue as long as the bill, moderately extensile, cleft nearly to the base, and the prongs convolved and filamentous, forming a full brush: wings medial, the fifth quill longest. Tail nearly even and divaricate. Alars and caudals wedged and mucronate. Legs and feet strong and reptant. Types, *gularis*, *occipitalis*, and *nigrimenta*: the two former published; the last new.

"*Y. nigrimenta*, H. Above olive-brown; below rufescent-yellow; cheeks and throat white; tip of chin, and lores, black: crest slaty-blue, legs fleshy. Bill dusky above, ruddy-fleshy below. Length four inches and a half; bill five-eighths of an inch; wing two inches and one-eighth; tail one and five-eighths; tarse three-quarters of an inch; central toe and nail half an inch; hind seven-sixteenths. [*Non vidi.*]

"These birds are genuine *Meliphagidæ*, with the brushed tongue of the type of that group. They feed on tiny insects that harbour in the cups of large deep flowers, such as the *Rhododendrons*, and to which the birds cling with their strong feet. They also take berries occasionally. They are exclusively monticolous, like our *Saroglossa* (*J. A. S. XIII*, 367), another *Meliphague* in the guise of a Stare, and therefore probably related to the *Etourneau verdâtre*.*

"*Ixulus*, H. Bill short, as in *Brachypus* [*Pycnonotus*?], but less stout, and the nares larger and more membranous. Tongue simple. Head crested. Wings rather short, more or less acuminate, the first three quills gradated, and the three next subequal, the fifth being usually longest. Tail moderate, subfurcate. Legs and feet suited for clinging. Tarse elevate, stout, considerably plus the mid-toe and nail. —Anteal toes short, unequal, depressed, and considerably connected at their bases. Hind large, broad, equal to inner fore without the nails, and to the outer with them. Nails *Parian*.

"Type *I. flavicollis*," olim *Yuhina flavicollis*, *As. Res. XIX*, 167. The near general approximation of my *Siva occipitalis* to this species has already been noted (p. 552), although the beaks of the two birds are very different.

The Indian *Zosterops*, (*XII*, 985,) it now appears, has been designated *maderaspatanus* by mistake. "There is properly," writes Mr. Strickland, "no such specific name as *maderaspatanus* for a

* I differ from Mr. Hodgson respecting the affinities of the *Saroglossa*, which I consider to be decidedly a *Sturnidous* bird, with meliphagous adaptations.—*Cur. As. Soc.*

Zosterops. Linnæus only wrote it in his *Syst. Nat.* by a slip of the pen for *madagascariensis*, as the bird he called *Motacilla maderaspatana* was from Madagascar, and Gmelin properly corrected the name to *madagascariensis*." The Indian species is the *Sylvia annulosa*, Var. *A*, of Swainson's Illustrations, and will now rank as *Z. annulosus*, (Sw.) It seems peculiar to the hilly parts of the country, from the Himalaya to Ceylon.

A second described oriental *Zosterops*, inhabiting Java and the Philippines, and probably the Malay countries generally, is the *Dicaeum flavum* of Horsfield, *Lin. Tr.* XIII, 170. Dr. Horsfield informs me, that "it is nearly allied to the Indian species, but distinct."

Z. nicobaricus, nobis, is a third common in the Nicobar islands. Length four inches, by six in extent of wings; closed wing two inches; tail one and a half; tarse five-eighths of an inch; bill to gape nine-sixteenths. Nostrils covered as usual by a soft impending scale; and the tongue subdivided at tip into a pencil of thin filaments. Upper parts greyish olive-green, greenest on the forehead, wings, and upper tail-coverts: throat and front of neck pale yellowish, the breast and under-parts whitish, except the lower tail-coverts which are light yellow: eyes surrounded, as usual, by silky white feathers; the lores and beneath the white orbital feathers blackish, the former surmounted by a yellowish line. Bill dusky, the base of the lower mandible pale; and the legs albescent-plumbeous. Upon dissection, the muscular coat of the stomach of a bird of this species was found to be considerably more developed than in *Nectarinia*, and both stomach and intestines contained numerous hard black seeds, about the size of No. 8 shot: these had probably been contained in a pulpy berry; and the fact of their passing the intestines is worthy of notice, as a Thrush fed upon haws invariably ejects the stones by the mouth.

There are two or more species of this genus in the Isle of France: viz.

Z. curvirostris, nobis. A good deal allied to the last in plumage, but having a more slender and distinctly incurved bill, rather longer than usual in the species of *Zosterops*; the tongue subdivided at tip into numerous filaments, forming a tolerably large brush. Length about four inches, of wing two inches, and tail one and a quarter; bill to gape five-eighths, and tarse three-quarters of an inch. Orbital feathers conspicuously white as usual. Head and fore-part of the neck dull ashy, tinged slightly with green; the rump, wings, and tail,

brightish olive-green: under-parts ashy, more or less pure, and passing to rufescent-whitish on the belly; the lower tail-coverts bright yellow; and the throat whitish, slightly tinged with yellow in one of two specimens: bill dusky, the basal two-thirds of the lower mandible yellowish; and the legs pale.

The true *Z. madagascariensis* also inhabits the Mauritius: but this, as Mr. Strickland informs me, is a short-beaked species, and therefore cannot be the same as the foregoing; besides that the description of it does not sufficiently apply to *Z. curvirostris*.

Z. (?) borbonicus, (Brisson). This is nearly allied to *Zosterops*, but is without the white orbital feathers so characteristic of that genus; it has also much the look of the British *Curruca sylviella* (upon a superficial view), but has no particular affinity for the latter.* It is probable that some more immediate congeners of this bird inhabit Australia, where not only the genus *Zosterops* attains its chief development of species, but also more especially the great austral group *Meliphagidæ*, to which *Zosterops* strictly belongs. The present species is also from the Isle of France.

Genus *Phyllornis*, Boie, v. (subsequently) *Chloropsis*, Jardine and Selby. The gradual enrichment of the Society's museum enables me now to offer a more satisfactory synopsis of this genus than that attempted in XII, 955 *et seq.*

A. With thicker bills, the upper mandible abruptly bent over (more or less so, in different specimens,) and sometimes quite hooked at tip. The shoulder of the wing uniformly green with the rest. Peculiar to the Malay countries.

1. *Ph. Sonneratii*, (Jardine and Selby): *Ph. Mullerii*, Tem.; female, *Turdus viridis* et *Chloropsis zosterops* of Horsfield: young male, *Chl. gampsorhynchus*, Jardine and Selby.

2. *Ph. cyanopogon*, Tem.: female, (or perhaps young male,) *Chlo-*

* By the way, I may here notice that the *Curruca sylviella* (v. *garrula*), so called, of S. India, is conspicuously a larger bird than its European relative, having the wing fully two inches and three-quarters long, and the rest in proportion: the general tone of colour is also somewhat darker, and the bill and legs are proportionally larger and stronger, the tarsæ measuring from thirteen-sixteenths to seven-eighths of an inch. As for the roseate tinge on the under-parts mentioned by Sykes, this is common to fine specimens from either country. I certainly consider the Indian bird to be distinct, and shall therefore name it *C. affinis*.

Prof. Behn also informs me, that the species assigned to *C. orphea* by Mr. Jerdon, is not the true *C. orphea* of continental Europe.

ropsis mysticalis, Swainson (*Menag.* p. 296), and described as that of the next species (which was erroneously referred to *malabaricus*,) in *J. A. S.* XII, 957. Exactly resembles the preceding except in its much smaller size, the male having rather less black on the throat, but a larger and broader azure moustache: the female has the throat and under-parts yellowish, with the blue moustache less developed. Length six inches to six and a half, of wing two and seven-eighths to three and a quarter, and tail two and a half to two and five-eighths; bill to gape thirteen-sixteenths of an inch, and tarse five-eighths.

B. The bill tapering to its extremity, and slightly curved. The shoulder of the wing of an ultramarine colour, more or less extended. Hab., for the most part, India, Burmah, and probably China.

3. *Ph. cochinchinensis*, (Lath., Gm.), the adult male, and *malabaricus* apud Latham, the young male; *Chl. cochinchinensis*, Jardine's synopsis: *Verdin de la cochinchine*, Buffon; *Chl. malabaricus* apud nos, *J. A. S.* XII, 957 (nec fœm.), and probably of Eyton, *P. Z. S.* 1839, p. 102; probably also *Meliphaga javensis*, Horsfield. This is the only species of the present subdivision which I have seen from the Malay countries; and specimens from the vicinity of the Straits present a considerable approximation in the form of bill to the members of the preceding section, while those from Arracan have decidedly a more tapering bill, less abruptly curved at the tip, and approaching therefore to the Indian type of *Phyllornis*. If I am right in identifying the *Chl. malabaricus* apud Eyton with the present species (of which I have little doubt), that author states that "the female differs from the male in having the markings less distinct:" this is probably the case with the mature female; but what I suspect is a young female from Singapore has the forehead, throat, and region of the eyes, green, and a fulvous tinge on the crown only, not any below; and a presumed young male from Arracan has a strong fulvous tinge on the crown, neck, and breast, while the throat is greenish, with distinct verditer moustache, more developed than that of the female, *cyanopogon*. In any state of plumage, the latter species may be readily distinguished from this other small one, by the total absence of blue on its wings and tail.

The three foregoing species are all common in the vicinity of the Straits of Malacca, and I doubt if any of the following occur in the Malay countries. The two next are proper to the peninsula of India, No. 4 only extending to the hill regions of Bengal.

4. *Ph. Jerdoni*, nobis: *Chl. cochinchinensis* apud Jerdon, *Catal.*: the male described as the female of the next, in *J. A. S.* XII, 956.

5. *Ph. malabaricus*, (Gm.); *le petit Merle de la côte de Malabar*, Sonnerat: *Chl. cæsmarhynchos*,* Tickell; *Chl. aurifrons* apud Jerdon, *Catal.*

And the two remaining species inhabit Nepal, Assam, Sylhet, and Arracan; No. 6 extending into Bengal.

6. *Ph. aurifrons*, (J. and S.); figured as *Chloropsis malabaricus* by Messrs. Jardine and Selby, as subsequently corrected by them in their synopsis of the genus.

7. *Ph. Hardwickii*, (J. and S.): *Chl. curvirostris*, Swainson; *Chl. cyanopterus*, Hodgson; *Chl. chrysogaster*, M'Clelland and Horsfield; and *Chl. auriventris*, Guérin.

I shall now essay to enumerate the Indian and Malayan Bulbous, which are very numerous, and pertain to various genera.

To commence with the genus *Pycnonotus* of Kuhl, comprising *Hæmatornis* of Swainson, nec Vigors.

1. *P. bengalensis*, nobis: *P. v. Ixos cafer*, apud nos et alios, ante.† Bengal, Nepal, Assam, Sylhet, Tipperah.

2. *P. hæmorrhous*, (Lath.): *Hæmatornis pusillus* et *pseudocafer*, nobis, *J. A. S.*, X, 841, &c.; *cafer* apud Jerdon, *Catal.* Peninsula of India, and Arracan: common about Agra.

3. *P. jocosus*, (L.): *Gracula cristata*, Scopoli; *Lanius emeria*, Shaw.

* This unmeaning name, *cæsmarhynchos* (apud Tickell), *v. casmarhynchos* (apud Gray), is merely a misprint for *gampsorhynchus* of Jardine and Selby: vide Griffith's 'Animal Kingdom,' VI, 391.

† In a letter lately received from Lord Arthur Hay, his lordship says—"I have been inspecting Buffon's figure of the true *cafer* from the Cape, and it does not agree in the least with the Bengal bird." Mr. Strickland, judging from the admeasurements alone (in the *An. and Mag. N. H.*, Vol. XIV, 47), concluded them to be the same. The wide difference of habitat, however, would lead to a pre-supposition of their distinctness; and presuming that they do differ, I now propose for the common Bengal species, the specific name *bengalensis*. This name is, indeed, better applicable than such terms usually are, since it is very doubtful whether more than two species of the genus exist in Bengal, this and the *jocosus*, and the present one is by far the more abundant of the two. It is closely allied to *P. hæmorrhous*, from which it differs in its larger size, and the greater extent of the black colouring, which spreads over the whole neck (excepting the ear-coverts, which are brownish), and low upon the breast, the back and belly also being much darker than in *P. hæmorrhous*, but the feathers of these parts are similarly margined with greyish. Length nine inches and a half, by twelve and a half in spread of wing; the closed wing four inches, and tail the same.

India generally, extending eastward to Tipperah and Arracan, and thence southward to Penang and even Malacca.*

4. *P. monticolus*, (M'Clelland and Horsfield), *Proc. Zool. Soc.* 1839, p. 160. Said to differ from the last by having "a scarlet ring about the eye, but no tuft beneath this organ." Kossia mountains, Assam. It rather requires verification.

5. *P. crocorrhous*, Strickland, *An. and Mag. N. H.* 1844, p. 412: *Muscicapa hæmorrhousa*, Var. B., Gm.; *Turdus hæmorrhous*, apud Horsfield. Java.

6. *P. bimaculatus*, (Horsf.), *Lin. Tr.* XIII, 147. Java.

7. *P. goiavier*, (Scopoli): *Muscicapa psidii*, Gm; *Turdus analis*, Horsfield. Malay countries generally.

8. *P. leucotis*, (Gould), *Proc. Zool. Soc.* 1836, p. 6. Common in Scinde, and I am informed also in Guzerat. It is likewise enumerated in a list of birds "collected in the north-western provinces of the Bengal presidency, in north latitude 29° to 31°, and east longitude 77° to 88°", and consisting chiefly of inhabitants of the plains, but with a few from the Himalaya, in *P. Z. S.* 1842, p. 92.†

9. *P. leucogenys*, (Gray), Hardwicke's *Ill. Ind. Zool.* Common in the Himalaya, and in Kashmir.

10. *P. flavirictus*, Strickland, *An. and Mag. N. H.* 1844, p. 413: *Tricophorus virescens*, Tem., apud Jerdon. Southern India.

11. *P. plumosus*, nobis. Length about seven inches, of wing three and a quarter, and tail three inches; bill to gape three-quarters of an inch; and tarse the same. This bird is remarkable for the extraordinary density and copiousness of its rump plumage, which has suggested the name bestowed on it. Colour of the upper parts darkish olive-brown, shaded with dull green, the wings and tail margined with brighter green; coronal feathers rounded and scale-like, of a cinerascens hue, slightly margined laterally with greenish: under-parts pale brown, lightest on the throat, and the lower tail-coverts slightly ochreous. Bill

* I have not actually compared Malayan with Bengal specimens, but have an impression that the crimson ocular tuft is considerably less developed in the former.

† In this list are several names, which, I suspect, require to be corrected: viz. "*Hirundo riparia*?" probably *H. sinensis*; "*Oriolus galbula*," probably *O. kundoo*; "*Malacocercus striatus*," probably *M. terricolor*; "*Ianthocincla leucocephala*," doubtless *Garrulax leucolophos*; "*Megalurus palustris*, Sykes," probably *Pellornium ruficeps*, which is *Megalurus ruficeps*, Sykes; and "*Centropus sirkee*," probably *Taccocua infuscata*, nobis.

dusky, and feet appear to have been reddish-brown. Two specimens are perhaps distinct, though very closely allied. In these the greenish tinge is wanting, even on the wings and tail, and there is no ashy tinge on the head, the feathers of which are much less scale-like; the lower tail-coverts also have a less decided tinge of ochreous, and the throat is much less albescent. In other respects they are similar. These are from Malacca, and the former from Singapore. Should they prove distinct, the second may bear the specific name of *brunneus*.* One or both are probably alluded to as one of two varieties of *P. goiavier*, (v. *Turdus analis*, Horsf.,) mentioned by Sir Stamford Raffles.

12. *P. flavescens*, nobis. So like the next in its general characters and colouring, that it might be supposed to be the female of that species, differing from the male in wanting the yellow spots on the throat, and the yellowish colour on the crown, were it not that the tail is always considerably more graduated, its outermost feathers measuring three-quarters of an inch shorter than the middle ones; whereas in *P. Finlaysoni* the difference is but half as much: it would, besides, be contrary to the analogy of all its congeners, for the sexes to present so marked a difference. Length about seven inches and three-quarters, of wing three and a quarter, and tail four inches; bill to gape seven-eighths of an inch, and tarse three-quarters of an inch. Colour dull greenish-olive above, the crown darker, with broader and more rounded coronal feathers than in *P. Finlaysoni*; alars margined with brighter yellowish-green, and caudals less decidedly: under-parts paler, mingled with dull yellow, imparting a streaky appearance; the vent and lower tail-coverts bright yellow, paling on the belly: lores blackish, surmounted with yellowish-white. Bill and feet dark. Hab. Arracan, where much less common than the next species.

13. *P. Finlaysoni*, Strickland, *An. and Mag. N. H.*, 1844, p. 411. Common in Arracan.

14. *P. zantholaimus*, Jerdon, *MS.* Length seven inches and a quarter and upwards, of wing three inches to three and a half, and tail three and a quarter to three and a half; bill to gape three-quarters of an inch to thirteen-sixteenths, and tarse three-quarters to seven-eighths. Upper parts ashy, tinged with green on the wings and tail, the crown yellowish-green, and throat and fore-neck pale yellow;

* Since the above was printed, I have received from Lord Arthur Hay a specimen of this *brunneus*, labelled by his lordship *Brachypus modestus*, A. Hay.

lower parts of a lighter ash-colour than the back, the tibial feathers and under tail-coverts pale yellow, and all but the middle tail-feathers tipped with yellowish-white, increasing in quantity to the outermost: bill and feet dark. Hab. Southern India.

15. *P. melanocephalus*, (Gray), Hardwicke's *Ill. Ind. Zool.*: *Brachypus plumifer*, Gould, *Proc. Zool. Soc.*, 1837, p. 137; *Vanga flaviventris*, Tickell, *J. A. S.* II, 573. Himalaya, Assam, Sylhet, Tipperah, and Arracan; also Central India.

All the above are in the Society's museum, with the exceptions of *P. crocorrhous*, *P. bimaculatus*, and the somewhat dubious *P. monticolus*. Also a common Chinese species, the *P. sinensis*, (Lath.), founded on *le Gobe-mouche verdâtre de la Chine* of Sonnerat, and figured as *Turdus occipitalis*, Tem., by MM. Eydoux and Gervais, in the 'Voyage de la Favorite'. Dr. Cantor procured this bird in Chusan, and the Society's specimens are from Macao. That figured by the French naturalists cited was obtained at Manilla. In general, however, the ear-coverts have a central whitish spot, instead of being wholly blackish, as represented in the coloured figure adverted to. Another common Chinese species, which is in the collection of Lord Arthur Hay, is *le Gobe-mouche à tête noire de la Chine* of Sonnerat, v. *P. atricapillus*, (Vieillot).*

The following Malayan species are, I presume, to be added to those already noticed.

Ixos virescens, Tem. (p. c. 382, fig. 1), which would seem to be allied to *P. plumosus*.

I. chalcocephalus, Tem. (p. c. 453, fig. 1).•

Lanius xanthogaster, Raffles, *Lin. Tr.* XIII, 309. This, however, is more doubtful as a true *Pycnonotus*.

Also two species from Southern India (in the Mysore district, bordering the Neilgherries), which Mr. Jerdon procured, but unfortunately

* Since writing the above, *P. atricapillus* has been received on loan from Lord A. Hay. Its place in the series is between *P. jocosus* and *P. leucotis*, but with the crimson lower tail-coverts of the first, though more brilliant. Length nearly nine inches, of wing three and three-quarters, and tail four inches; bill to gape seven-eighths, and tarse the same. Colour of the upper-parts light brown, with greyish edgings to the feathers, the upper tail-coverts and the entire under-parts brownish-albescent; cap glossy black, the feathers not much elongated; chin, lores, and beneath the eyes, also black; wings deep brown, the feathers margined paler; and tail dusky-black, gradually deeper on the terminal half, the caudal feathers being all tipped with white: bill black, and legs dusky-black.

lost the specimens before he took a description of them. Coloured drawings of them, however, were taken by a native painter in Mr. Elliot's service, and from these Mr. Jerdon drew up the following notices. Vide 'Madras Journal', No. XXX, p. 168. They were about six and a half or seven inches in length, the second being rather the smaller.

" *Yellow-eared Bulboul*. Above yellowish-green, beneath yellow; ocular region black; a plume of soft loose feathers over the ear tipped with yellow.

" *White-eared Bulboul*. Above light green, beneath greenish-yellow; head, neck, and breast, dusky grey; ear-spot white."

Lastly, as a very aberrant species, I shall provisionally refer to this genus the bird considered by Mr. Jerdon to be the *Turdus indicus*, Gm., and ranged by him in the same division with *Pycnonotus flavivictus*; but which Mr. Strickland thinks is considerably too small for Gmelin's *indicus*, and has therefore given it a new name, describing it as *Criniger? ictericus*, *An. and Mag. Nat. Hist.*, 1844, p. 411. The only specimen in the Society's collection, and which was presented by Mr. Jerdon, accords in its dimensions with those given by Mr. Strickland; but Mr. Jerdon gives the length as from seven and a half to eight inches, wing four inches, and tail three and a half, which last admeasurement only, holds true in the Society's specimen: and if the species ever attains those dimensions, I think there can be no objection to identifying it as the *indicus* of Gmelin.*

Alcurus striatus, (Blyth) Hodgson, *J. A. S.* XI, 184. This differs little from *Pycnonotus* in form of bill, but its large size and thick heavy body ally it to *Criniger* (v. *Tricophorus*), in which genus I originally placed it, while Mr. Hodgson first assigned it to *Pycnonotus*. It does not, however, range well with any other species known to me, and at my recommendation Mr. Hodgson applied the name *Alcurus* to it, which I here adopt.

Genus *Criniger* (subsequently *Tricophorus*), Temminck.

1. *Cr. ochrocephalus*, (Gmelin): *Tricophorus crispiceps*, nobis, *J. A. S.* XI, 204. Malay countries generally, and the Tenasserim provinces. It is a favorite cage bird with the Malays.

* It is remarkable that a common African Bulboul (*Pycn. chrysorrhæus*) has recently turned up in Ireland. Vide *An. and Mag. N. H.* 1845, p. 308: the whole group of Bulbouls being, otherwise, extra-European, and there is nothing approaching to the form in all America. Neither do I remember a single Bulboul genus in Australia.

2. *Cr. flaveolus*, (Gould), *Proc. Zool. Soc.* 1836, p. 6. Common in the Himalaya, and in the hill ranges of Assam, Sylhet, and Arracan. An allied South African species is figured by Dr. Andrew Smith, as *Tricophorus flaviventris*.

3. *Cr. Tickelli*, nobis: doubtfully referred to *Ixos virescens*, Tem., by Capt. Tickell, *J. A. S.* II, 573, but evidently a distinct species of the present genus, allied to the preceding one. From near Midnapore. (*Non vidi.*)

4. *Cr. gularis*, (Horsfield), *Lin. Trans.* XIII, 150. Allied in plumage to *Cr. flaveolus*, but crestless, and the beak remarkable for its *Vanga*-like, or *Lophocitta*-like, form, with the tip of the upper mandible abruptly bent over. Malay countries generally.

N. B. I may here remark, that the genera *Lophocitta*, *Vanga*, and *Prionops*, form together a peculiar group of Bulbous, of which the only known oriental species is *Lophocitta galericulata*, (Cuv.), common near the Straits of Malacca: but the *Lanius coronatus*, Raffles, *Lin. Tr.* XIII, 306, would seem to be nearly allied.* The habits of *Prionops talacoma*, as described by Dr. A. Smith, are quite those of the ordinary Bulbous.

Spizixos, nobis, *n. g.* General structure of *Pycnonotus*, but differing greatly in the shortness and (for a member of this group) extraordinary thickness of the bill, the lateral outline of which approaches that of *Conostoma æmodius*, Hodgson, *J. A. S.*, X, 856, except that the tip of the upper mandible curves more decidedly downward over that of the lower mandible, being also pointed and distinctly notched, with a sinuation corresponding to the notch in the lower mandible: as viewed from above, however, the resemblance to the beak of the *Conostoma* ceases, for that of the present bird narrows evenly to a point from a tolerably wide base: the ridge of the upper mandible is obtusely angulated, and it is distinctly arched, rising at base where concealed by the feathers of the forehead. Rest as in *Pycnonotus*, but approaching to *Criniger*.

Sp. canifrons, nobis. Length about eight inches, of wing probably

* Mr. G. R. Gray, I observe, gives, as synonymes of *Lophocitta galericulata*, the *Lanius scapulatus*, Licht., *L. coronatus*, Raffles, and *Vanga cristata*, Geoff., figured in Griffith's 'Animal Kingdom'; but the figure adverted to has a much flatter bill, which is coloured white, and the primaries are coloured rufous. Mr. G. R. Gray refers *Lophocitta* to the Jay group, in which I cannot agree with him.—The Society has now received *Lanius coronatus*, Raffles, which is obviously the female of *Loph. galericulata*.

three and three-quarters (but the first primaries were growing in the specimen), and of tail three and a half: bill to forehead a little exceeding half an inch, and to gape three-quarters; tarse also three-quarters of an inch. General colour bright olive-green, becoming yellowish-green and more vivid on the rump and margins of the primaries, and inclining also to yellow on the belly and more decidedly on the lower tail-coverts: forehead and chin pale ashy; the nape, with the sides and front of the neck, somewhat darker, passing into blackish on the throat; and the crown black, its feathers lengthened to form a crest nearly an inch high: tail-feathers largely tipped with blackish. Bill yellow; and legs brown. Hab Cherra Poonjee, or the hill ranges bordering on Sylhet to the northward.

Hemixos, Hodgson, *n. g.* "Bill to gape rather longer than the head, [moderately slender,] inclining to arch, with terminal notch, and erect, entire, trenchant *tomia*. Tongue cartilaginous, and simply bifid. Rictus bristled. Nares lunate, lateral, shaded above by a small unarched nude membrane, which is set over by small nareal bristles. Legs and feet very short, but stout: the tarse strong and smooth. Toes short, very unequal, depressed; the fores basally connected, the outer one as far as the joint, the inner less so. Nails strong, acute, and highly curved. Wings medial, round, acuminate; the fifth quill longest: the first two much, and the two next slightly, gradated. Tail ample, very firm, even, but inclining to furcation."

"*H. flavala*, mihi. Length eight inches and a third; expanse twelve inches; closed wing four inches; tail three and a half; bill to gape an inch; tarse (to sole) thirteen-sixteenths; central toe nine-sixteenths; outer seven-sixteenths; inner three-eighths; hind five-sixteenths. Weight 1 oz." General colour ashy, with dusky wings and tail, the former having the secondaries and tertiaries, with their great range of coverts, broadly margined with bright greenish-yellow, and the tail a little tinged with the same externally: throat and lower tail-coverts white; the belly greyish-white, and the breast of a paler ash-colour than the back: lores and streak from base of lower mandible black; the ear-coverts brown, and crown dusky-greyish, the coronal feathers lengthened and pointed, as in *Hypsipetes*. Bill black, and legs plumbeous.

"This type," remarks Mr. Hodgson, "is compounded of the characters of *Hypsipetes* and of those of the Bulbuls, between which it claims a place. Its manners, like its form, are intermediate. It feeds mostly

on pulpy berries, but likewise takes soft and imperfect insects. It does not sing, nor is caged ; and it seems to be wholly confined to the hills, being unknown below. The sexes are alike in colouring, but the male is rather the larger bird. The stomach is muscular, and of considerably unequal thickness in its outer coat ; the inner being tough and striate. Intestinal canal eight inches and a half, the cœca very small and rudimentary. Contents of stomach commonly berries, rarely soft and imperfect insects, and also some perfect and hard ones chiefly in winter." (Hodgson's *MSS.*) It appears to be very common along the sub-Himalayan ranges, extending to those of Assam, Sylhet, and Arracan.

Iole, nobis, *J. A. S.* XIII, 386. This distinct form, I am now satisfied, falls under the *Bulboul* group, being allied to the preceding, and to *Hypsipetes*. The coronal feathers are pointed, as in both ; and the beak is that of *Hypsipetes*, shortened and widened, and thus deviating in the Flycatcher direction ; the whole form being also shortened, or as in an ordinary *Bulboul*.*

I. olivacea, nobis, *J. A. S.* XIII, 386. Common at Malacca. Fine specimens attain a length of seven inches and a half, wing three and a half, and tail three and a quarter.

I. virescens, nobis. Length about six inches and a half, of wing three inches, and tail the same ; bill to gape seven-eighths of an inch, and tarse eleven-sixteenths. Colour olive-green above, paler and more yellowish below, the throat inclining to albescent, and the lower tail-coverts tinged with ochreous, as is also the tail : a slight shade of the same prevails upon the crown, back, and wings. Bill dusky above, pale below ; and feet light brown. Younger specimens have the throat more yellowish, and the coronal feathers are less pointed and distinct. Common in Arracan.

I. cinerea, A. Hay. For the loan of an example of this fine species I am indebted to Lord Arthur Hay. It has the *Hypsipetes* character of the coronal feathers more developed than in either of the others. Length about seven inches, of wing three and three-quarters, and tail three and a quarter ; bill to gape seven-eighths, and tarse three-quarters of an inch. Upper parts cinereous-brown, the forehead and

* This species will have been named by M. Temminck, as also my *Tephrodornis grisola*, *J. A. S.* XII, 180, *Phœnicura leucoptera*, XII, 962, and *Muscicapula melanoleuca*, (Hodg.), XII, 940 ; as all of these have now been received by the Society from Java.

above the eye ashy, which also margins the pointed feathers of the crown; throat, middle of belly, and lower tail-coverts, white, the flanks and across the breast pale ash-brown. Bill and feet dusky, the latter having apparently been brown. From Malacca.

Hypsipetes, Vigors. The species of this genus exhibit a considerable gradation: the first two being typical, with sub-furcate tail, a character which is less marked in the second. These have also coral-red bills, ashy plumage, and black crown.

1. *H. psaroides*, Vigors. Common in the Himalaya, extending to the hill ranges of Assam, Sylhet, and Arracan.

2. *H. neilgherriensis*, Jerdon. Neilgherries and Ceylon.

3. *H. ganeesa*, Sykes: figured in the 2nd series of the 'Illustrations of Ornithology', by Sir W. Jardine and Mr. Selby. This species I have never seen. It is proper to Western India, and is probably common in the Mahabuleishwa hills.

4. *H. McClellandii*, Horsfield. Bill dusky, paler below: wings and tail green, the latter nearly square, but having its two or three outermost feathers successively a trifle shorter. This species takes the same range as *H. psaroides*.

From the above, we pass to more aberrant species, with the bill stronger, and the tail shorter and more rounded.

5. *H. philippensis*, Strickland, *An. and Mag. N. H.* 1844, p. 413.

6. *H. malaccensis*, nobis. This approaches nearly to the description of the last, but has the crown of the same olive-green with the back, and no trace of rust-colour on the cheeks and chin. Length about eight inches and a half, of wing four inches, and tail three and a half, its outermost feathers a quarter of an inch less: bill to gape an inch and one-eighth; and tarse three-quarters of an inch. Upper parts dull olive-green, the wings and tail brownish-dusky, margined with the colour of the back: throat and breast ashy, with whitish centres to the feathers, the abdomen and lower tail-coverts dull white: bend of the wing underneath, and the axillaries, pale yellow. Bill and feet horn-coloured. Feathers of the crown pointed, but this character is less developed than in the more typical species. In two specimens, some old unshed secondaries and wing-coverts have a rufescent tinge, but there is no trace of this in old birds. The rictal bristles are considerably more developed than in the typical species, (as in *Hemixos* and *Iole*,) while in *H. McClellandii* they are intermediate. Common at Malacca.

A specimen from the Nicobars is perhaps the young, having the wing but three inches and a half long, and the secondaries, tertiaries, and edges of the primaries, rufous-brown; tail slightly tinged with the same: coronal feathers tinged with dusky-ash, and less pointed; the throat and fore-neck white, tinged with yellow; and the rest of the under-parts mixed yellow and white, with olive on the sides of the breast: bill also shorter, tinged with yellow, and approaching in form to that of the next group, as indeed does the whole figure of the bird; so much so, that if the above characters prove to be permanent, I would propose for it the name *Ixocincla virescens*.

A form requiring, I think, distinction from *Hypsipetes*, may be designated

Ixocincla, nobis. It differs from *Hypsipetes*, in its more bulky form, stouter and more meruline bill, and in the greater size of the legs and toes; but in other respects is nearly allied.

I. olivacea, (Jardine and Selby); the female erroneously figured as *Hypsipetes ganeesa*, in the *Ill. Orn.*, 1st series, pl. CLXVIII, and (as I am informed) subsequently named *Hyps. olivacea* in the second series of the same work, where a figure of the true *H. ganeesa* is given. This bird has a much more meruline aspect than in true *Hypsipetes*, and it is known as the *Merle* to the colonists of the Isle of France. Length eleven inches and a half, of wing five and three-eighths, and tail four and five-eighths; bill to gape an inch and three-eighths, and tarse an inch. Male having the upper-parts dusky, the feathers margined with dark dingy greenish; wings and tail uniform dusky-brown, the tertiaries slightly margined with ashy: cap blackish, the feathers pointed as in true *Hypsipetes*; lores deeper black, and a slight grey supercilium from the nostrils to the occiput, lighter-coloured from the nostrils to the eye: under-parts uniform dusky ash-colour, purer on the throat, and paling on the belly and under tail-coverts, which last have a faint tinge of ferruginous: bill bright orange-yellow; and the legs appear to have been yellowish-brown. Female paler, with the greenish margins to the feathers much more developed, and the ash-colour confined to the throat, ear-coverts, and front of the neck.

Turdus borborenicus, Lath., is perhaps a second species of this type.

The generic name *Brachypus*, it seems, must now be abandoned, at least in Ornithology, and it appears never to have been employed in a very definite signification. At all events, very different forms of

Bulbous have been brought together under this appellation. Swainson gives *Turdus dispar*, Horsf., as the type; and Gray and Gould have applied it to species of true *Pycnonotus*; viz. *Br. leucogenys* and *Br. melanocephalus*, Gray, in Hardwicke's 'Illustrations,' and *Br. plumifer*, Gould, a synonyme of the second species cited: *P. leucotis*, however, is referred by Gould to *Ixos*; and his *Br. gularis* would seem to be a true congener of *Br. dispar*, (Horsf.,) Sw. To the type of the two latter species, I shall now provisionally give the name *Rubigula*; and then there remains that of *Lanius melanocephalus*, Gm., and its congeners, for which I can find no appellation, and shall therefore designate *Brachypodius*.

Rubigula, nobis. There is unfortunately no specimen in the museum from which I can define this group, but of the present series it makes the nearest approach to *Pycnonotus*, and has the rump uniformly coloured with the back, and a subquadrate tail, unlike the next form. The species (at least in the male sex) are remarkable for the brilliant ruby, or sometimes orange-ruby, hue of the throat, the feathers of which are rigid and glistening. Three species would appear to have been ascertained.

1. *R. dispar*, (Horsfield), *Lin. Tr.* XIII, 150. Malay countries.
2. *R. gularis*, (Gould), *Proc. Zool. Soc.* 1835, p. 186: *Brachypus rubineus*, Jerdon. Southern India.
3. *R. ———*, (Temminck), *p. c.* 382, fig. 2, as noticed in Griffith's 'Animal Kingdom,' VI, 390. Java.

Brachypodius, nobis.

1. *Br. entolotus*, (Jardine and Selby), *Ill. Orn.*, 2nd series. (*Non vidi.*) Hab. Malacca.
2. *Br. poiocephalus*, (Jerdon). Southern India.
3. *Br. melanocephalus*, (Gmelin): *Turdoides atriceps*, Temminck. Malay countries, extending northward to Arracan and Tipperah.

4. *Br. cinereoventris*, nobis. Differs from the last in having the nape and under-parts to near the vent of a deep ash-grey, and in its tail-feathers being less deeply tipped with yellow, which is also less bright, while the green of the upper parts is darker and much less yellowish. Length of the wing three inches and a quarter. Inhabits Tipperah.

5. *Br. tristis*, nobis. Also allied to *Br. melanocephalus*, but remarkable for its very plain brown colouring. Length about seven inches, or

nearly so, of wing three and a quarter, and middle tail-feathers three inches, the outermost five-eighths of an inch shorter; bill to gape three-quarters of an inch, and tarse half an inch. Colour plain brown above, darkest on the crown, wings and tail, the caudal feathers being dusky, with pale tips to the outer ones; under-parts paler, especially on the abdomen and throat: the plumage of the rump copious, as usual, and of a dusky colour, with dull yellowish-brown terminal fringes: bill deep horn-colour, and legs brown. For permission to describe this species, I am indebted to Dr. Theodore Cantor, whose very extensive collection of Malayan birds, &c. when these come to be unpacked and examined, will doubtless yield other novelties. *Br. tristis* inhabits Penang, where it is not very common.

Lastly, as a very aberrant species, may be provisionally ranged

6? *Br. ? criniger*,* A. Hay. The beak in this bird is vertically much less high than in the others, and altogether the species has a good deal the character of an *Alcippe* (nobis, *J. A. S.* XIII, 384), excepting in its very small tarsi and toes. Length about six inches, of wing two and seven-eighths, and tail the same, its outermost feathers a quarter of an inch less; bill to gape eleven-sixteenths, and tarse nine-sixteenths, the middle toe and claw but half an inch. Colour olive-green above, the coronal feathers, wings and tail, brunnescent; lores, ear-coverts, and the whole under-parts, yellowish, brightest on the belly and lower tail-coverts, passing to whitish on the centre of the throat, and mingled with olive-green on the breast and flanks: three outermost tail-feathers slightly tipped with yellowish on their inner webs. Bill dusky above, and pale below: legs and claws white. The coronal feathers are rounded, and of very different texture from those of the back; the rictal setæ are well developed; and there is a remarkable nuchal tuft of eight or ten straight black hairs, the longest of which are an inch and five-eighths in length in the specimen examined. Inhabits Malacca.

Microtarsus, Eyton, *Proc. Zool. Soc.* 1839, p. 102. This is nearly allied to the preceding group.

1. *M. melanoleucos*, Eyton, *ibid.* Common at Malacca.

Finally, *Ixodia*, nobis. Allied to the last genus, and in its squared tail to *Rubigula*. Bill small and compressed, widening very little at base, the tip of the upper mandible but faintly emarginated, and the gape

* Can this be the *Setornis criniger* of Lesson, the description of which I have not seen? It certainly ranges most properly as a distinct division.

unarmed. Rest as in *Microtarsus*; the head being crestless, and the coronal plumage uniform in texture with the other feathers. The lower tail-coverts of the only ascertained species are bright yellow, as in various species of *Pycnōnotus*.

Ix. cyaniventris, (nobis,) *J. A. S.*, XI, 792: *Turdus*, No. 6, Raffles, *Lin. Trans.* XIII, 311. Common in the vicinity of the Straits of Malacca.

The next is a very remarkable group, which begins now to exhibit a variety of species, and of generic modifications of form, which will ultimately indicate its true place in the system. Not long ago, its only ascertained representative was the *Paradoxornis flavirostris* of Gould: but the following may now be referred to it.

1. *Conostoma æmodius*, Hodgson, *J. A. S.* X, 856. Nepal.

2. *Paradoxornis flavirostris*, Gould, *P. Z. S.* 1836, p. 17; *Mag. Zool. and Bot.* 1838, p. 513; *Icones Avium*, pl. VI: *Bathyrhynchus brevirostris*, McClelland, *Ind. Rev.* 1838, p. 513. Especially characterized, generically, by the deep sinuation of the tomæ of its mandibles. Hab. Eastern Himalaya, and the mountains of Assam.

3. *Heteromorpha unicolor*, Hodgson, *J. A. S.*, XII, 448. Nepal.

4. *H. ruficeps*; *Paradoxornis ruficeps*, nobis, *J. A. S.*, XI, 177. Bootan mountains, and those of Arracan: Darjeeling.

Chleuasicus, nobis, *n. g.* Nearly allied to *Suthora*, Hodgson (*Ind. Rev.* 1838, p. 32, and *J. A. S.* XII, 449), from which it is distinguished by the considerably larger proportionate size of the legs, and by the rather larger and decidedly broader bill, the outline of which (as seen laterally) is still more tumid and anomalous-looking. Rest as in the other genera of the group.

5. *Chl. ruficeps*, nobis. Length five inches and a half, of which the tail measures two and three quarters; wing two and five-eighths; bill to forehead (through the feathers) three-eighths of an inch in a straight line; and tarse seven-eighths; the latter, with the toes and claws, thicker and stouter than in *Suthora*. Colour as in my *Heteromorpha ruficeps*, but the under-parts white, or less tinged with rufescent: *i. e.* the head and neck are bright ferruginous; the rest of the upper parts olive-brown, more or less inclining to ferruginous, especially towards the shoulder of the wing; and the entire under-parts are white: bill whitish horn-colour, apparently tinged with green in the recent specimen; and the legs appear to have been greenish-plumbeous. From Darjeeling.

6. *Suthora nipalensis*, Hodgson. Nepal, Darjeeling.

7. *S. fulvifrons*, Hodgson. Length five inches, of which the tail measures two and a half, its outermost feathers an inch and a quarter less; wing two inches and one-eighth; bill to forehead (through the feathers) a quarter of an inch; and tarse three-quarters. Upper parts light rufescent-brown, inclining to fulvous on the forehead, throat, and breast, with a broad pale duskyish streak along each sinciput; secondaries, and base of caudals, broadly margined with bright chesnut-fulvous; the belly and flanks albescent-greyish. Bill pale, dusky along ridge of upper mandible; and legs light brown. From Nepal.

In XII, 443, I expressed an opinion that the division *Heteromorpha*, Hodgson, should merge in *Paradoxornis*; but I have since seen Mr. Gould's figure of *P. flavirostris* in the *Icones Avium*, which induces me now to follow Mr. Hodgson's arrangement, and also to refer No. 4 of the above list to his genus *Heteromorpha*.

The Indian Nuthatches and Tree-creepers may be enumerated as follow:—

1. *Sitta formosa*, nobis, *J. A. S.* XII, 938, 1007. Darjeeling. Beak scarcely at all compressed, and tapering almost evenly from the base, as seen from above.

2. *S. himalayana*, Jardine and Selby, *Ill. Orn.* 1st series, pl. CLXIV; to which I suspect must be referred *S. cinnamoventris*, nobis, *J. A. S.* XI, 459, though it does not quite accord either with the figure or description. The sexes differ as in *S. castaneiventris*, but the under-parts of the male are not quite so dark as in the corresponding sex of that species; and the deep rufous-brown colouring extends up to the throat, and in some specimens leaves little white on the chin, but the sides of the throat over the jaw are always white, as equally in *S. castaneiventris*. *S. himalayana* is stated to have the tail black, except its middle pair of feathers, the rest having "the basal half [probably a mistake] of the inner webs white; on the outer feather there is an oblique white bar, and the second has a round white spot on the tip of the inner web." In *S. cinnamoventris*, the outermost tail-feather has an oblique white bar towards the middle of its external web, and a larger white spot near the extremity of its inner web; and the next two feathers have each a successively smaller spot on their inner webs; the bill also is much longer than that of *S. himalayana* is represented in the figure, and is black with more or

less white at base; and the legs are certainly not yellow, as those of *S. himalayana* are coloured in the plate, but appear to have been plumbeous, with yellow on the soles. Another discrepancy of *S. cinnamoventris* with the figure of *S. himalayana*, consists in the black of the loreal region not extending upon the forehead, whereas it would appear represented to do so in the figure of the other. Nevertheless, I still suspect that they will prove identical. As for the *Indian Nuthatch* of Latham (*Gen. Hist.* IV, 73), it is not very clear to which species this is to be referred. The beak of *S. cinnamoventris* is distinctly compressed, but broad and stout. It appears to be peculiar to the Himalaya.

3. *S. nipalensis*, Hodgson, *J. A. S.* V, 779. Himalaya. A small species, with remarkably short bill, tapering evenly from the base, as viewed from above.

4. *S. castaneoventris*, Franklin, *P. Z. S.* 1831, p. 121; J. and S., *Ill. Orn.* 1st series, pl. CLXV. Hilly regions of the Indian peninsula, extending to the Rajmahl district of Bengal. Bill very much compressed and narrow.

5. *Dendrophila frontalis*, (Horsf.) Swainson: *Sitta corallina*, Hodgson, *J. A. S.* V, 779. Hilly parts of India generally, from the Himalaya southward, and also of the Malay countries: common in Arracan.

A *D. flavipes* is likewise alluded to by Mr. Swainson in his 'Classification of Birds', p. 318, citing "pt. V, No. 130," it may be presumed of Temminck's *Planches coloriées*.

6. *Tichodroma muraria*, (L.) Illiger. The Rock or Wall Creeper of Southern Europe. Common in the Himalaya, as also in Western Asia. Mr. Vigne remarks, that it "is found throughout the Alpine Punjab, displaying the delicate scarlet patch upon its grey wings, as it flits over the perpendicular banks, with the movements of a butterfly rather than of a bird." *Travels in Kashmir*, &c. II, 20.

7. *Certhia himalayana*, Vigors, *P. Z. S.* 1831, p. 174.

8. *C. discolor*, nobis. Distinguished by having the entire under-parts uniform dingy brown, or very much sullied albescent (inclining in some to whitish on the abdominal region), and no ferruginous on the flanks, but only on the lower tail-coverts; whereas in the preceding species the under-parts are pure white, tinged with ferruginous on the sides of the breast, and the flanks as well as the lower tail-coverts are deep ferruginous: the upper-parts also are a shade less rufous than in

C. himalayana, and the pale central spots to the feathers are more diffused (i. e. much less defined), especially those of the head. Upon a first view, it might be thought that the under-parts of *C. discolor* are merely dirty; but the colour is not to be washed out, and five specimens before me are all quite similar, while in three Nepal specimens of the other the white is alike pure, and the flanks deep ferruginous. It is indeed possible that neither of these is the true *C. himalayana*, in which case the Nepal species might be designated *C. nipalensis*, Hodgson. *C. discolor* is common at Darjeeling.

There is a *Certhia spilonota*, Franklin, P. Z. S. 1831, p. 121, with "tail soft and flexible (!), in which respect it differs from the type of the genus, but it agrees in all others." It therefore cannot, however, be properly classed in *Certhia*, and requires to be re-examined. Neither Mr. Jerdon nor myself have been able to identify it. "*C. supra griseo-fusco, albo maculata; capite albo graciliter striato; gula abdomineque albidis, hoc fusco fasciato; caudâ albo fuscoque fasciatâ. Longitudo 5½ unc.*" Major Franklin's specimens were collected on the Ganges between Calcutta and Benares, and in the Vindhyan hills between the latter place and Gurrah Mundelah, on the Nerbudda.

Accentor mollis, nobis. This fourth species of Himalayan *Accentor* (vide J. A. S. XII, 958 et seq.) is about six inches long, of which the tail occupies two and a half; wing three and a quarter; bill to frontal feathers five-sixteenths of an inch; and tarse three-quarters of an inch. Colouring soft and delicate. Upper parts a rich brown, passing into pure dark ash-colour on the head and neck, and into maronne on the scapularies and tertiaries, and less deeply on the hind part of the back; coverts of the secondaries pure dark grey, those of the primaries, with the winglet, black, as are also the primaries, these last having their unemarginated portion externally bordered with pale grey; tail greyish-dusky; frontal feathers to above the eyes margined with white, the lores blackish, and the entire under-parts slightly embrowned deep ash-colour, as far as the vent, which is pale and tinged with ferruginous, the under tail-coverts being deeper ferruginous, and the hind portion of the flanks dark ferruginous: bill blackish; and feet pale, having probably been tinged with yellow. From Darjeeling.

"The species of this genus," remarked Mr. Yarrell not long ago, "are very limited in number, only five, I believe, being at present known. Two are figured in this work ['History of British Birds,'] as belonging

to England [one of these, however, being there only known as an excessively rare straggler]; two others are found in the north and east of Europe*; and a fifth has been received from the Himalaya mountains. M. Temminck includes *A. alpinus* in his catalogue of the birds of Japan." The discovery of four Himalayan species, all different from those of Europe, is accordingly no small accession to the known species of the present group; and it is likely that the mountain ranges of Central Asia will be found to yield several more.

Locustella rubescens, nobis. Without having a specimen of the British *L. Raii* for comparison, I sufficiently well remember that bird (of which I have shot many) to be enabled to state that the present one is a true Locustelle, having merely a rather shorter tail, and the legs (I think) are somewhat stouter than in its British congener. The general characters, however, are quite the same. Length six inches, by seven and three-quarters in spread of wing; the closed wing two inches and a half; and tail two inches, its outermost feathers half an inch less; bill to gape three-quarters of an inch, and tarse seven-eighths. Irides dark hazel. Bill dusky horn, pale at base of lower mandible; and legs light brown. Colour of the back ruddy-brown, with black centres to feathers; of the crown dusky, with olivaceous lateral margins to each feather; sides of neck plain olivaceous, as are also those of the breast; throat and belly white, the front of the neck tinged with fulvescent-brown, which is likewise the hue of the flanks; lower tail-coverts fulvescent-brown, the longer of them darker with whitish tips; rump and tail dark ruddy-brown, all but the middle feathers of the latter slightly tipped with grey, with traces of barred markings of the same underneath; wings dusky, the coverts margined with olivaceous, and the large alars with ruddy-brown; tips of the tertiaris a little albescent; a narrow whitish line from bill to occiput, and slight medial dusky lines on the hindmost feathers of the flanks. A single specimen of this bird was shot in the neighbourhood of Calcutta, in the month of March. On dissection, the muscles of its legs were observed to be very thick, with stiff rigid tendons, as in the British Locustelle.

* Surely that of northern Europe here alluded to, is not the so-called *A. calliope* of M. Temminck, v. *Calliope camtschatkensis*, (Lath.)?: a bird common in Lower Bengal during the cold season, but certainly having no particular affinity for *Accentor*.

Tribura luteoventris, Hodgson. Nearly allied in form to the preceding, but the tail much more graduated (as in *Locustella Raii*), and the bill rather more compressed, with the ridge of the upper mandible more decidedly raised and acute towards its base. I suspect that it pertains to the division *Pseudoluscinia*, Bonap. Length about five inches and a half, of which the middle tail-feathers measure two and a half, the outermost being an inch shorter; wing two inches; bill to gape nine-sixteenths of an inch, the latter quite smooth (as in *Locustella*); tarse three-quarters of an inch; claws fine, and but moderately curved, the hind-claw measuring half an inch. Upper parts uniform olive-brown; the lower paler, except the flanks, which are also a little rufescent; throat and middle of the breast and belly inclining to whitish; bill dark horn-coloured above, and pale below; and legs light brown. Inhabits the Kachar region of Nepal.

Mr. Hodgson gives the following generic characters of his *Tribura*. "Bill equal to the head (measured to gape), straight, compressed, at base high as broad, with the ridge raised and keeled between the oval nares: tip of upper mandible very slightly inclined, but distinctly (though minutely) notched: rictus quite smooth. Wings short and rounded, the two first quills conspicuously and equally gradated, the three next subequal and longest. Tail somewhat elongated and gradated equally throughout, rather cuneated than fan-shaped. Tarse medial, stout [or rather, of moderate strength], smooth, longer than the middle toe and nail: toes and nails slender and simple, compressed and elongate; inner lateral with its nail exceeding the outer; the hind toe least, and not broad. Feet of terrene model,"—being much as in the British *Locustella*, which bird I have seen on the ground, among furze bushes, I think with an ambulatory gait.

Dumeticola, nobis, n. g. A specimen sent by Mr. Hodgson with the MS. name *Salicaria affinis*, would fall under M. Temminck's division of *Bec-fins aquatiques*, but would scarcely have been referred by Mr. Selby to his *Salicaria* (now dismembered, and its component species assigned to previously established divisions). Nearly allied to the last species, it departs further from the *Salicaria* model, and approaches more to that of *Prinia*, and especially of *Horeites* (hereinafter described): having comparatively full and puffy plumage, and a less cuneated tail, inasmuch as the three middle pairs of feathers graduate but slightly; the first primary is also rather shorter, and the second rather

longer, than in *Tribura* (v. *Pseudoluscinia* ?) *luteoventris*. The bill is shaped somewhat as in *Cinclus*, but is proportionately shorter, with the peculiarities of that form less developed ; the nareal apertures are quite basal ; and the gape smooth, as in the preceding : feet also similar, but the claws slightly longer and straighter.

D. thoracica, nobis. Length five inches, of which the tail measures two inches, its outermost feathers seven-eighths of an inch less ; wing two and one-sixteenth ; bill to frontal feathers three-eighths of an inch, and to gape above half an inch ; tarse three-quarters, and hind claw five-sixths of an inch. Upper-parts dark olive-brown, with a faint ruddy tinge on the lower part of the back ; throat and above the lores white, passing into ashy on the breast, which, with the fore-neck, is marked with largish round dusky spots ; lower portion and sides of the breast plain brownish-ashy, the medial portion of the belly white, and the flanks fulvescent-brown ; under tail-coverts dark olive-brown, with whitish tips : bill dusky, and legs and claws pale. Inhabits Nepal.

Horornis, Hodgson, is placed by that naturalist as a subgenus of his *Tribura* (*Pseudoluscinia* ? Bonap.), having "the bill feebler, and the tarse sometimes distinctly scutellated : wings and tail as in *Nivicola*" (note to p. 585).—I have a hasty note of the second species below described, (from a specimen taken to England by Mr. Hodgson,) as being "intermediate to *Prinia* and *Tesia*, having the bill slender and compressed, much as in *Locustella*, with the rictorial hairs scarcely perceptible ; tail rather short, and much graduated ; wings the same, the first quill but half the length of the second, the fourth and fifth equal and longest, a little exceeding the third and sixth."

H. flaviventris, Hodgson. (*Non vidi*.) "Above olive-green, below pale yellow ; chin and line over eye albescent ; legs fleshy ; bill dusky-brown. Length four inches and three-eighths ; bill half an inch ; tail an inch and five-eighths ; wing under two inches ; tarse thirteen-sixteenths ; central toe and nail eleven-sixteenths ; hind nine-sixteenths. Hab. the Cachar, or *juxta*-Himalayan region of the hills."

H. fortipes, Hodgson. "Bill slender, with notch and inclination distinct ; rictal hairs distinct. Tail broad, soft, fan-shaped. Legs strong, and frequently smooth. Wing as in *Tribura*, more or less pointed, and not absolutely rounded as in *Horeites*. Above olive-brown ; below white : the flanks, vent, and eye-brows, yellowish. Legs and bill fleshy-white ; the bill more sordid. Length four inches

and five-eighths; bill half an inch; tail under two inches; wing two and one-sixteenth; tarse above fifteen-sixteenths; central toe and nail eleven-sixteenths; hind nine-sixteenths. Hab. the Cachar." Hodgson's MSS —. The following description was taken by myself from the specimen before alluded to. Length about four inches and a quarter, of wing two inches, and tail an inch and a half, its outermost feather half an inch shorter: bill to gape five-eighths of an inch; and tarse three-quarters of an inch. Colour uniform dark olive-brown above, below pale ochraceous-brown, approaching to albescent; flanks and lower tail-coverts dark brown, the latter margined paler; bill dusky above, below paler; legs also pale.

Horeites, Hodgson. "Bill shorter than head, quite straight, usually distinctly notching; nares covered with a scale. Wing as in *Prinia*. Tarse high, as in *Prinia*, but the toes less rept, ambulant in fact, with the laterals equal and freer, and the central longer; nails slender and *Sylvian*, not *Parian* as in *Orthotomus*. Tail short [or rather, I should say, of moderate length], narrow [I should rather term it somewhat broad], rounded as in *Orthotomus*, but without the *Merops*-like elongation of the centrals." Hodgson's MSS.—According to my ideas, these birds approach a good deal to the genus *Tesia*, particularly to *T. flaviventris*; but have a more slender bill, a well developed, cuneiform, broad and soft, tail the feathers of which are much graduated, and the general character tends distinctly towards *Pseudoluscinia* and its allies. Mr. Hodgson describes two alleged species, "exclusively confined to the northern region of the hills, near the snows."

H. brunnifrons, Hodgson. "Above olive-brown, [slightly] redder on wings and tail; cap red-brown. Below sordid white [pale ashy], pure centrally. [Bill dusky above, pale beneath; and the legs pale.] Length four inches; bill half an inch; tail an inch and five-eighths; wing the same [varying from this to nearly two inches]; tarse three-quarters; central toe and nail five-eighths; hind seven-sixteenths."

H. pollicaris, Hodgson. "Above dark olive, below and the eye-brow yellowish. Legs and bill fleshy-grey. Length three inches and a half; bill seven-sixteenths; tail an inch and five-eighths; wing the same; tarse thirteen-sixteenths; central toe and nail five-eighths; hind half an inch. Has a slender, *Regulus*-like, bill, and very short, extremely rounded, wings. Its tarse is remarkably elevate, and scutellate

to the front, and its toes are compressed and ambulant, but with a remarkably large thumb for such a foot." From a specimen taken to England by Mr. Hodgson, I took the following note.—"Probably only the young of *H. brunnifrons*, from the adults of which it differs in the colour of the head being uniform with that of the back, and the under-parts less albescent and devoid of any ashy tinge, being slightly washed with yellowish. "These birds constitute a *nivicolan* or northern hill group, representing the *Priniæ* of the plains of India." Hodgson's MSS.*

Tesia, Hodgson (February, 1837): *Microura*, Gould (August, 1837). Of this curious genus, the following species may now be enumerated.

1. *T. cyaniventer*, Hodgson, *J. A. S.*, VI., 101: *Saxicola ? olivæ*, McClelland and Horsfield, *P. Z. S.*, 1839, p. 161. Bright olive-green above, slaty below. Nepal, Darjeeling, Assam.

2. *T. castaneo-coronata*, (Burton), *P. Z. S.* 1835, p. 152: *T. flaviventer*, Hodgson, 1837. Bright olive-green above, vivid yellow below, with the crown and ear-coverts a lively reddish-chesnut. Nepal.

3. *T. squamata*, (Gould), *Icones Avium*: var. A, *T. rufiventer*, Hodgson, *J. A. S.* VI, 102; Var. B, *T. albiventer*, Hodgson, *ibid.*; Var. C, *T. concolor*, Hodgson, *MS.* I believe these to be all different phases of plumage of the same species, and therefore venture upon

* The following, to judge from specimens presented to the Society by Mr. Hodgson, so far from being generically different, appears to me to be identical in species with *Horeites brunnifrons*, presenting at most but an individual diversity, such as may commonly be seen in different specimens of *Prinia inornata*, or *Cysticola cursitans*, shot out of the same little society; but I nevertheless give Mr. Hodgson's diagnosis, as follows:—

Nivicola, Hodgson, "Bill still shorter, feebler, *Regulus*-like, with the notch evanescent: wings and tail broader, firmer, ampler than in any of the above: tail fan-like. Wings not absolutely round; the fifth quill longest; the two first nearly, the next little, and both *inter se* equally, graduated. Tarsæ medial: toes simple, ambulant. Habitat the Cachar, near the snows.

"*N. schistilata*, H. Above olive-brown, below white, and laterally pale slaty-blue. Legs fleshy, bill pale. Cap on crown brunnescens. Coloured very like our *Horeites brunnifrons*, but decidedly different in structure, with longer wings, broader and firmer tail, and more ambulant feet, of which the central digit is long, the laterals equal and nearly free, and the hind least and compressed. Length four inches and a quarter; bill half an inch; tail two and one-sixteenth; wing one and fifteen-sixteenths; central toe and nail ten-sixteenths; hind half an inch, or less." Hodgson's MSS.

adopting the specific name bestowed by Mr. Gould, in preference to either of those given by Mr. Hodgson, as being alone applicable to the species generally. However stringently rules may be drawn up, such as the very excellent "Series of Propositions for rendering the Nomenclature of Zoology uniform and permanent," adopted as the Report of a Committee appointed by the 'British Association' for the consideration of this subject, cases will still arise, now and then, in which a naturalist must rely upon his own judgment, and indeed the present one may be brought under § 11 of the "Propositions," by which "a name may be changed when it implies a false proposition which is likely to propagate important errors." For a precedent, I cite the *Neomorpha Gouldii* of Mr. G. R. Gray, it having been ascertained that the *N. acutirostris* and *N. crassirostris* of Gould were merely the different sexes of the same bird. At the same time, I most fully concur in the remark, that "this privilege is very liable to abuse, and ought therefore to be applied only in extreme cases, and with great caution." In the present instance, it may be justly urged in favour of Mr. Gould's specific name, that the bird having been *figured* by that naturalist as *Microura squamata*, it is already better known by that denomination than by any other, and that the proposed alteration, so far from being likely to induce confusion, is, on the contrary, calculated to remove a source of error, such as would result from the exclusive adoption of either of Mr. Hodgson's appellations to the species in all its phases. I might even have hesitated in proposing an entirely new name for the bird in question; but that given by Mr. Gould has not only already obtained currency, but was besides very nearly contemporaneous with the partially applicable ones bestowed by Mr. Hodgson. Certainly, the characters and dimensions of the three alleged species correspond exactly; and it will be seen that Mr. Gould's second figure represents a specimen just midway between *T. albiventer* and *T. rufiventer*, while an example presented to the Society by Mr. Hodgson of his *T. concolor*, is of a uniform brown colour all over, with a slight ashy shade on the under parts; but retains two or three white-margined feathers on the breast resembling those of ordinary *albiventer*, with which it quite accords in all other particulars, and is decidedly of the same species. A second specimen is plain brown above, with white throat, and white margins to the feathers of the breast and belly, decreasing on those of the flanks. A

third has pale terminal specks on the feathers of the upper parts, larger and elongated on those of the head, and the white of the underparts much as in the last, but rather more developed. This variation of plumage is instructive, and a knowledge of it may prevent a multiplication of factitious species. Inhabits Nepal, and Darjeeling.

4. *T. pusilla*, Hodgson, n. s. Size and proportions of the next, but the bill rather longer, and the tail barely exceeding half an inch. In general aspect it much resembles the *rufiventer* variety of the last. Upper parts dark brown, the wing-coverts having terminal pale dots: lores and under parts of a light wood-brown, the feathers slightly margined with black; those of the flanks chiefly dark, with brown margins, and the extreme edge black, like the rest. Bill dusky above, and legs horn-brown. Inhabits Nepal.

5. *T. caudata*, n. s. Length three inches and five-eighths, of which the tail measures an inch, being considerably more developed than in the other species of analogous tone of colouring; wing an inch and three-quarters; bill to forehead seven-sixteenths, and tarse eleven-sixteenths. Upper parts dark and rich olive-brown, the feathers very slightly margined with black, and having also black shafts; throat ferruginous, paling on the breast, where the feathers have black centres and are further tipped with black; the belly similarly marked with dusky-black and white: wings uniform dark reddish-brown; and tail inclining to the same, being also very soft and flexible: lores and orbital region ash-grey: bill blackish; and legs brown. From Darjeeling.

To these may be added the *Troglodytes microurus* of Ruppell, which shews the form to be likewise African.

Mr. Hodgson proposes to restrict *Tesia* to *T. cyaniventer* and *T. flaviventer*, and applies a new name to the others, which, however, if deemed separable, would rank under *Microua* of Gould: unless, indeed, the latter be pre-occupied, in which case the name *Pnoëpyga*, Hodgson, would be admissible. The two species cited have a more developed tail; but so has my *T. caudata*, which nevertheless decidedly belongs to the *Microua* section; and Mr. Hodgson further points out that *T. cyaniventer* has the bill flatter at base, while in *T. flaviventer* the nareal scale, conspicuous in the others, is barely traceable: nevertheless, I do not see that they can be justifiably separated. According to the same naturalist, "these singular birds are solely mountaineers, dwelling in humid retired woods, where under-cover abounds. They

are solitary and silent; and they breed and nestle on the ground, and feed on insects and small seeds. Stomach a perfect gizzard.*

Troglodytes nipalensis, Hodgson. Differs from the European Wren in its much darker colouring, in having the back a great deal more barred, the under-parts throughout distinctly barred, and more closely so than the upper-parts, and the bill somewhat shorter and a little more widened at base. Length of wing an inch and seven-eighths. Nepal.

T. punctatus, nobis. Size of the European species: the bill shorter, and vertically much deeper. Length of wing an inch and three-quarters, and of tail an inch and a quarter. Upper parts fuscous-brown, with a pale speck at the extremity of each feather, some of these specks being white or nearly so; tail barred as in the European Wren, but the feathers softer and more graduated; tertiaries comparatively broad, their ground-colour a dark mahogany, as is likewise the colour of the bars on the outer webs of the primaries. Under-parts delicately mottled, a good deal in the manner of the scapularies of a Wryneck (*Yunx torquilla*), but the pale spots much more numerous on the breast, and nearly obsolete on the belly, which last has a fulvous tinge. Bill dark horny; and the legs appear to have been pale. Inhabits Darjeeling.

Orthotomus cineraceus, nobis. This nearly approaches the *Orth. edela*, (Tem., v. *Edela ruficeps* of Lesson, and *Motacilla sepium* of Raffles, nec *Orth. sepium*, Horsf., vide *J. A. S.* XIII, 378), except that the upper-parts are pure ash-grey, without any tinge of green, whereas in *Orth. edela*, according to Raffles, the "back, wings, and tail," are "dusky green." The forehead and sides of the head are light ferruginous, palest on the cheeks, and there is a slight tinge of the same upon the chin; crown tinged with olive-brown; lower parts white, passing to light ashy on the sides of the breast; tail somewhat brownish, with terminal dusky band, and whitish extreme tips to its

* There is an allied (or rather, analogous,) South American form, which, I understand, is the *Leptorhynchus* of Menetries, but which name is pre-occupied; and the following species of it appears to be undescribed, in which case it may bear the specific name *sub-luteoventris*. Length two inches and seven-eighths; of wing one and five-eighths; tail five-eighths: bill to gape nearly five-eighths; and tarse the same, being with the toes much smaller than in *Tesia*. Upper-parts black, the feathers laterally margined with light brownish-yellow; lower-parts clear yellowish-white, whitish on the throat: a dark line from base of lower mandible; and central dark lines to the feathers of the sides of the neck, and of the fore-part of the breast. Bill dusky above, pale beneath; and legs albescent-plumbeous. Probably from Guiana.

outer feathers; tibial plumes rust-coloured, the tarsi and toes red-brown, and bill dusky above, the lower mandible pale. The middle tail-feathers are not elongated in the only specimen under examination. Length about four inches and a half, the wing an inch and thirteen-sixteenths, and tail one and five-eighths; bill to gape three-quarters of an inch, and tarse five-eighths. Common at Malacca.

Prinia, Horsfield. Of this genus, I have no species to describe additional to those noticed in Vol. XIII, p. 376, but may remark that Mr. Jerdon considers that two or three are at present confounded under *Pr. inornata*: considerable variation, however, certainly obtains in individuals shot out of the same flock; and it may be noted that this bird extends its range into Arracan. *Pr. Franklinii*, nobis, (v. *macroura*, Franklin, nec Latham), being the *Sylvia longicaudata* of Tickell, *J. A. S.* II, 576, will now bear that as its specific name: and *Pr. cursitans*, Franklin, as I am informed by Mr. Strickland, "is decidedly congeneric with the European *Cisticola schænicola*, but differs in being more rufous, &c. I have compared them," he adds, and it may be further noticed that the *cursitans* is common in Lower Bengal.*

Neornis, Hodgson. This name was applied by Mr. Hodgson to my *Culicipeta* (*J. A. S.* XII, 968), but he has since referred to it two alleged species as aberrant representatives of the form, which appear to me to have an obvious claim to typify a distinct genus, in denomination of which I propose that the above name should be retained. General form of *Prinia*, but with the bill and the colouring of *Phylloscopus*, and long hair-like rictal setæ.

N. flavoliracea, Hodgson. "Above olive-green; below and the eye-brow, luteous-yellow [dull pale yellowish]. Length five inches; bill half an inch; tail two inches and three-eighths; wing two and five-sixteenths; tarse five-sixteenths; central toe and nail five-eighths; hind nine-sixteenths." Hodgson's *MSS.* Bill dusky, base of lower mandible pale; legs brown, the tarse pale externally.* Nepal.

N. cacharensis, Hodgson. "Above luteous-olive; below buff; eye-brow pale. Length four inches and three-quarters; bill nine-sixteenths; wing two inches: tarse seven-eighths; central toe and nail

* Since the above was written, I have seen three specimens of *Pr. socialis* from Agra, which, though similar in plumage, are smaller than one sent by Mr. Jerdon from S. India, and have the bill considerably smaller.—A species very closely allied to (if indeed different from) *Pr. sylvatica*, Jerdon, has also been received from Java.

five-eighths; hind half an inch." *Ibid.* N. B. I greatly suspect that this is merely the young of the preceding, from comparing a specimen sent by Mr. Hodgson of the latter, with a description I took of the former from a specimen which that naturalist took with him to England.

The *Prinia olivacea* and *Pr. icterica*, Strickland, *P. Z. S.*, June, 1844, are two species from Fernando Po, which are probably referable to this type.

Phylloscopus, Boie. This genus is greatly developed in India, and the species may be ranged into three sections.

Firstly, those immediately allied to *Ph. trochilus*, &c. of Europe, of which I have already described six, as occurring in the vicinity of Calcutta during the cold season. These are,—1. *Ph. fuscatus*, nobis, *J. A. S.* XI, 113. Of this I have now obtained several specimens, and one or two have been forwarded from Arracan,—2. *Ph. javanicus*, (? Horsf.); *Ph. magnirostris*, nobis, *J. A. S.* XII, 966. Rare in the neighbourhood of Calcutta, and occurs likewise in Arracan,—3. *Ph. lugubris*, nobis, XII, 968. Common, and also occurs in Southern India,—4. *Ph. viridanus*, nobis, XII, 967. Very common, and abundant also in the Himalaya and in Arracan,—5. *Ph. tristis*, nobis, XII, 966. Common in swampy places, wherever there is jungle; and diffused generally over India,*—6. *Ph. nitidus*, nobis, XII, 965. India generally. To these may now be added—

7. *Ph. brunneus*, nobis. Length about four inches, of wing two and three-sixteenths, and tail one and three-quarters; bill to gape exceeding half an inch, and tarse three-quarters. •A plain brown species, distinguishable from *Ph. tristis* by the more cinerascens shade of its upper parts, by the absence of any yellow on the axillaries and beneath the shoulder of the wing, which is replaced by faint rufous, by the pale colour of the lower mandible and of the legs, and by the shape of its tail, of which the outermost feathers are a quarter of an inch shorter than the middle ones; lower parts brownish-albescent. From Arracan, where procured by Captain Phayre.

8. *Ph. affinis*, (Tickell), *J. A. S.* II, 576: *Sylvia indica*, Jerdon. Indian peninsula. (*Non vidi*, and the identification of these is due to Mr. Jerdon.)

* I also found this species in great abundance in a mango tope near Hooghly, where there was no marshy ground in the immediate vicinity.

There are others in the Himalaya, which I formerly considered identical with *Ph. trochilus* and *Ph. rufa* of Europe; but I had no specimens of the latter to compare them with. *Ph. trochilus* is stated by Mr. Gould to have been received from Western India, and by M. Temminck from Japan; and *Ph. sibilatrix* is enumerated in Dr. Royle's list, but the allied *Ph. nitidus* may have been mistaken for it. The species of this genus require very minute examination.

Mr. Hodgson separates those which have a pale coronal mesial line, and, in some instances only, rather a thicker bill, approaching in form to that of *Phyllopneuste*, by the same *Abrornis*. I can only regard them as forming a slight section of the genus: and the next might form an analogous third section.

Ph. schisticeps, (Hodgson). Resembles *Culicipeta Burkii* (*J. A. S. XII*, 968, v. *Muscicapa bilineata*, Lesson, v. *Cryptolopha auricapilla*, Swainson,) in colouring, except that the head and nape are uniform deep ash-grey; having the rest of the upper-parts bright yellowish-green, the entire under-parts deep yellow, and the two outer tail-feathers white on their inner web: the bill, however, is not depressed, as in the *Culicipeta*, but is thicker than usual (approaching in this respect to *Phyllopneuste*), and comparatively short: the claws also are shorter, stronger, and more hooked, than in *Culicipeta*, better adapted for clinging, as in other *Phylloscopi*. Length about four inches and a quarter, of wing two inches to two and one-eighth, and of tail an inch and five-eighths; bill to gape half an inch; and tarse five-eighths: colour of bill blackish above, yellow below; and of feet yellowish. The young have looser plumage, and all the colours less intense. Inhabits the Himalaya, and the mountainous parts of Arracan.

Of the species with pale mesial coronal streak, I have already described *Ph. reguloides*, *J. A. S. XI*, 191, and *XII*, 963,—and *Ph. modestus*, (Gould), *ibid.*,—both of which occur likewise in the Himalaya and in Southern India, and the latter in Arracan. To these may now be added—

Ph. pulcher, (Hodgson). Allied to *Ph. modestus*, but larger, and distinguished by having the three outer tail-feathers wholly white, with the exception of the terminal half of their outer webs, together with the tip of the inner web of the ante-penultimate, and slightly of the penultimate feathers. Colour of the upper-parts dark olive-green, with a rufous cast, and two pale rufescent bars across the wings;

beneath dingy pale green ; a light streak over the eye, and trace of another upon the centre of the crown. Bill dark above, and pale beneath ; the feet brown. Length about four inches and one-eighth, of which the tail measures an inch and five-eighths ; wing two and three-eighths, the space between the tips of the first and second primaries three-quarters of an inch : bill to gape half an inch ; and tarse nearly three-quarters. Inhabits Nepal.

Abrornis castaniceps, Hodgson. "Above vernal-green : belly, vent, and croup, deep yellow. Chin to belly white, passing laterally to soft plumbeous. Top of head chesnut, bounded by black to sides. Legs and bill pale. Length four inches ; bill three-eighths ; tail an inch and five-eighths ; wing one and fifteen-sixteenths ; tarse three-quarters ; central toe and nail seven-sixteenths ; hind five-sixteenths of an inch." Nepal. (*Non vidi.*)

Phyllopneuste, Meyer, 1822 : *Ficedula*, Koch, 1811. The latter term, though having the priority, is objectionable as conveying the idea that these birds are fruit-eaters, like the Fauvettes, which decidedly is not the case.

Ph. indicus, nobis. Nearly allied to the European *Ph. hippolais*, termed *Hippolais salicaria* by the Prince of Canino, and *Sylvia polyglotta* by Vieillot. Length about five inches and a half, or nearly so ; of wing two and five-eighths to two and three-quarters, its first primary measuring three-quarters of an inch, and the second an inch and one-eighth more, and reaching to within three-eighths of an inch of the extremity of the wing ; tail two inches and a quarter ; bill to gape five-eighths ; and tarse three-quarters of an inch. Colour dark olive-green above, a little infuscated, especially upon the crown, with a well defined dull pale yellow supercilium ; breast tinged with ashy, mingled with dull pale yellowish, the rest of the under-parts dull yellowish-albescent ; a slight band on the wing formed by the pale yellowish tips of some of the greater coverts : bill dusky above, and in part below, the rest yellowish, with conspicuous hair-like rictal setæ ; and the legs appear to have been pale leaden. Sent from Nepal by Mr. Hodgson, and from Southern India by Mr. Jerdon.

2. *Ph. occipitalis*, Jerdon. Smaller and paler, with a light yellowish mark on the middle of the occiput, flanked on either side with blackish, and then with pale yellowish-green, continued as a supercilary streak from the bill ; the first of these markings corresponding

with the termination of the coronal streaks of *Culicipeta Burkii*, of *Phylloscopus reguloides*, and of certain other species of the latter genus. Colour ashy-green, purer green on the wings and rump; a slight whitish cross-band on the wing, formed by the tips of the greater coverts; lower-parts dull albescent throughout; shoulders of the wings inferiorly, with the axillaries, yellow: bill duskyish above, pale yellow below; and legs yellowish-brown. Length four inches and three-quarters, of which the tail is an inch and seven-eighths; wing two inches and three-quarters; bill to gape five-eighths; tarse eleven-sixteenths. Southern India, where discovered by Mr. Jerdon.

3. *Ph. rama*, (Sykes), *P. Z. S.* 1832, p. 89. Common in Southern India.*

Calamohërpe, Boje (1822). Three species of this genus are common in Bengal, and it would seem over India generally; visiting the plains, however, only during the cold season.

1. *C. arundinacea*, (? Lin.)†: *Sylvia turdoides*, Tem.; *Agrobates brunnescens*, Jerdon. This bird requires, however, to be actually compared with European specimens. Length of a female seven inches and three-quarters, by ten and a half in expanse; wing three and five-eighths; tail three and three-eighths; bill to gape an inch and one-sixteenth; and tarse one and one-eighth.

2. *C. montana*, (Horsfield). Very common, and comes a good deal into gardens, frequenting pea-rows and the like. In wilder marshy districts, such as the swampy thickets in the vicinity of the salt-water lake near Calcutta, not one is to be met with, while both the other species abound; and the next is rarely seen in the haunts of *C. montana*. *Prinia flaviventris* and *Phylloscopus tristis* frequent the same places as *C. agricola*, but keep more to the higher jungle where there happens to be any; and I have observed no other *Phylloscopus* or *Prinia* in the localities proper to those above mentioned. *C. montana* measures five inches and three-quarters, by seven and a quarter; wing

* I have just been looking over the series of these birds with Lord Arthur Hay, and it is his lordship's opinion that *nitidus* should be referred to *Phyllopneuste*, (in which case I believe that the British *sibilatrix* should accompany it,) and that *reguloides* and *pulcher* should rank in *Culicipeta*; which, I think, would certainly bring *schisticeps* into the same division. His lordship does not quite agree with me in referring *modestus* to *Phylloscopus*, but I cannot bring myself to accede to placing this last bird as a *Regulus*.

† Prof. Behn assures me, that this is certainly distinct from *Turdus arundinaceus*, Lin., of Europe; in which case it must stand as *C. brunnescens*, (Jerdon).

two inches and a quarter to two and three-eighths; tail two and a quarter: bill to gape three-quarters; and tarse seven-eighths of an inch. As compared with the British *C. salicaria*, (*Sylvia arundinacea*, apud Temminck,) the tinge of the upper-parts, breast and flanks, is much less brown, and the beak is less compressed, although vertically deeper. The next species has a nearer affinity for the British bird, both in form and colouring; but is smaller, with a distinctly smaller bill, and the supercilium is carried backward beyond the eye, which is not the case in *C. salicaria*.

3. *C. agricola*, Jerdon. Less than the preceding, with a proportionally smaller bill, and more rufous colouring. Length four inches and a half, by six and seven-eighths; wing two and a quarter; tail the same; bill to gape five-eighths; and tarse seven-eighths. A specimen procured at Cabool by the late Sir Alexander Burnes agrees perfectly with others obtained near Calcutta and in Southern India.

Arundinax, nobis. This genus was first detected by Mr. Jerdon, among a number of specimens of *Calamoherpe arundinacea* (?), which the only species as yet ascertained a good deal resembles, on a superficial view. Several specimens were soon after procured by myself in the vicinity of Calcutta; and Captain Abbott also sent it from Ramree, Arracan. Its true affinity, however, is with *Sphenura* and its allies, and not with the preceding group. The bill is somewhat more produced and tapering, slenderer and less laterally compressed, than in *Sphenura*, with barely discernible emargination of the upper mandible, and the rictal bristles are smaller and more slightly curved; rest as in *Sphenura*, but the tail-feathers narrow and much graduated.

Ar. olivaceus, nobis. General aspect of *Calamoherpe arundinacea* (?), but at once distinguished by its shorter and thicker bill, and much more graduated tail-feathers. Length eight inches, of which the middle tail-feathers measure three and three-quarters, the outermost an inch less; wing three and one-eighth; and tarse an inch. Colour uniform olive-brown above, a little rufescent towards the tail; throat whitish, and the rest of the under-parts tinged with fulvous-brown; lores also pale: bill dark brown, the lower mandible pale carneous; and legs plumbeous. My impression is, that the sexes are equal in size, as are all the specimens before me,—unlike the sexes of *Sphenura* and *Megalurus*; but I have omitted to note down the fact.

Gampsorhynchus rufulus, nobis, *J. A. S.* XIII, 371. Four specimens of this curious bird are now before me, of which two are from Darjeeling, and the others from the mountains of Arracan: and it is remarkable that all of these appear to be partially affected with albinism. All four resemble in having the under-parts vivid white, with a tinge of ferruginous on the flanks; and the upper are bright olive-brown inclining to ferruginous, the tail-feathers tipped paler: all, too, have more or less white on the shoulder of the wing, though reduced to a single feather upon one wing only, of one of them, while another has about half an inch of the shoulder of each wing white, and the rest shew a greater or less admixture of white on the same part: but the crown varies most remarkably, being either pure white or bright ferruginous, or the two variously intermixed, and without either depending on age or season, as new feathers may be seen growing of both. In its affinities, this genus exhibits a very close approach to *Sphenura*, more so than I had recognised upon the examination of the first specimen only; but the more developed bill, and distinctly notched and hooked upper mandible, with the diminished curvature of the rictal bristles, which however are equally rigid, and longer and more tapering, fully authorise its separation from the form of *Sphenura striata*, though it is likely enough that species will eventually be found to connect them by intermediate links.

We have accordingly now the following Indian genera of this group:—*Sphenura*, Licht. (v. *Dasyornis*, Vig. and Horsf.);—*Gampsorhynchus*, nobis;—*Arundinax*, nobis;—*Laticilla*, nobis (olim *Eurycercus*, *J. A. S.* XIII, 374, which name cannot be retained, as it was previously applied to a genus of *Entomostraca* by Dr. W. Baird, in the *An. and Mag. Nat. Hist.*, February, 1843, p. 88);—and *Schænicola*, nobis, XIII, 374: all these being distinct from the extra-Indian (so far as at present ascertained) *Sphenæacus*, Strickland, which again is closely allied*: so also is *Megalurus*, Horsf. (vide XIII, 372); and we

* If *le Fluteur* of Levaillant, which is the type of Mr. Strickland's *Sphenæacus*, be correctly figured by Mr. Swainson (who terms it *Malurus africanus*), it would have a much thicker bill than *Sph. gramineus*, Gould, figured in the "Birds of Australia," so much so that the two could scarcely range together in the same minimum group, though in other respects they would seem to resemble very closely. The *Cinctorhampus cruralis* of Gould, founded on the *Megalurus cruralis*, Vig. and Horsf., is a form nearly allied to true *Megalurus*, and like the latter and also *Sphenura*, the female is very much smaller than the male, this disparity being even greater than in its Indian affines. I have never had an opportunity of observing the habits of *Mega-*

have the *Malacocercus caudatus*, (Dumeril, v. *Timalia chatarrhæa*, Franklin, and *Megalurus isabellinus*, Swainson), and the *Suya criniger* of Hodgson, connecting the present group respectively with the long-tailed *Malacocerci*, and with the *Priniæ*. Indeed, I hardly consider *Suya* to be separable from *Prinia*.

The genus *Malacocercus* treated of in XIII, 367 *et seq.*, has since been further developed by Mr. Jerdon, in the second No. of his 'Illustrations of Indian Ornithology'; and this naturalist now considers that the species which he formerly referred to *Somervillei* of Sykes, and which I followed him in so doing in XIII, 368, is distinct from Col. Sykes's bird; for which reason he has given it the name *malabaricus*.

The proposed genus *Orthorhinus*, nobis, J. A. S. XIII, 371, proves to have been founded on a young example of a new species of *Pomatorhinus*, and must therefore be cancelled; but the species will stand as.

Pomatorhinus hypoleucos, nobis. Adults, received from Tipperah and Arracan, merely differ from the young before described in the firmer texture of their feathers, and in the elongation and curvature of the beak, as in the other species of the genus to which it is now referred: but the beak is less curved and less compressed than in the majority of the species, in which respect, as in size and colouring, *P. erythrogeus* makes the nearest approach to it. Colour above olive-brown, a little cinerous on the head, and a rufous streak commences behind the eye and expands into a patch on the sides of the neck beyond the ear-coverts: lower-parts white, margined with ashy on the sides of the breast, and the flanks wholly ashy, with a tinge of brown: wings and tail a little rufescent, the lower tail-coverts more deeply so. Bill dusky, with more or less of its terminal portion horn-white; and the legs appear to have been greenish. Length ten to eleven inches, of wing four and a quarter, and tail four inches; bill to gape one and three-quarters; and tarse one and a half.

P. ferruginosus, nobis. This beautiful species measures about nine inches long, of which the tail is four and a quarter; wing three and a quarter; bill to forehead an inch to one and one-eighth; and tarse an inch and three-eighths. Colour greenish olive-brown above, the

lurus palustris, but am informed that it keeps much more to the reeds than seems to be the case with *Cinclorhamphus australis*, though it, in like manner, mounts singing into the air.

cap black in the male only ; lores and ear-coverts also black in both sexes, extending a little along the sides of the neck ; a long white supercilium, tinged with rufous on the sides of the forehead in the male ; throat, towards the chin, also white, but the rest of the under-parts bright ferruginous, fading on the belly : bill deep coral-red ; and legs dusky-brown. It is unusual, if not previously unexampled, for the sexes in this genus to present any marked difference of colouring. The species inhabits Darjeeling, and the mountains of Arracan.

Here, then, are two more species of *Pomatorhinus*, to be added to the ten (or eleven) enumerated in *J. A. S.* XIII, 946. I may remark, also, that specimens of *P. schisticeps* from Tipperah and Arracan have the rufous sides considerably brighter than any I have seen from the Himalaya, though this difference may, after all, be merely sexual ; and that there seem to be two marked varieties of *P. erythrogenys*, one having white under-parts with merely faint traces of darker spots, the other with the throat and breast densely mottled with greenish-olive, much as in the darker specimens of *P. ruficollis*, though the latter species has always a white throat.

Genus *Garrulax*, Lesson. A more satisfactory reduction of the described species of this extensive genus may now be offered, than that given in Vol. XII, 948 ; but as there is no occasion for repeating here the synonymes which are there brought together, I shall merely put the word *ante* as a reference to them.

1. *G. Belangeri*, Lesson, *ante*. Tenasserim and Pegu.
2. *G. leucolophos*, (Gm.) : probably *Ianthocincla leucocephala*, Gould, mentioned in *P. Z. S.* 1844, p. 92. Himalaya, Assam, Sythet, and Arracan.
3. *G. perspicillatus*, (Gmelin), *ante*. China. (*Non vidi.*)
4. *G. chinensis*, (Scopoli) : *G. auritus*, &c., *ante*. China.
5. *G. albogularis*, (Gould), *ante*. Himalaya.
6. *G. gularis*, (McClelland). Assam. (*Non vidi.*)
7. *G. Delesserti*, (Jerdon), *ante*. Neilgheries.
8. *G. pectoralis*, (Gould) : var. *G. melanotis*, nobis, *ante*. Himalaya, Arracan. In the latter province, black-eared and silvery-eared individuals occur commonly in the same flock, with every intermediate grade ; but I have only seen the silvery-eared variety from the Himalaya.
9. *G. moniliger*, (Hodgson). Himalaya, Tipperah, Arracan.
10. *G. McClellandii*, nobis, *ante*. Assam. (*Non vidi.*)

11. *G. cœrulatus*, (Hodgson). Himalaya : not rare at Darjeeling.
12. *G. ruficollis*, (Jardine and Selby): *G. lunaris*, (McClelland),
ante. Darjeeling, Assam, Sylhet.
13. *G. rufifrons*, (Swainson), *Menag.* p. 290 : *G. rubrifrons*, Les-
son. Java. (*Non vidi.*)
14. *G. ocellatus*, (Vigors). Himalaya.
15. *G. rufogularis*, (Gould), *ante*. Himalaya, Sylhet..
16. *G. squamatus*, (Gould), *ante*. Himalaya.
17. *G. subunicolor*, (Hodgson). Young, described in *J. A. S.* XII,
note to p. 952, and again in *An. and Mag. N. H.*, May, 1845, p.
326. The adults are as follow :—Length ten inches, of which the tail
measures four and a half, its outermost feathers an inch and a half less ;
of wing three inches and a half ; bill to forehead five-eighths, and to
gape seven-eighths ; tarse an inch and three-eighths. Upper parts as
in *G. squamatus*, but slightly greener, the feathers of the crown dashed
with dusky-cinereous, and but very slightly margined darker ; lores
blackish ; the ear-coverts and feathers immediately below them a little
margined with silvery-ash : under-parts nearly resembling those above,
but the breast and belly paler, with the dark margins to the feathers
less intense : outer primaries and the emarginated portion of the rest
narrowly edged with pale ash, the rest broadly with bright yellow, as in
G. chrysopterus and some others : tail aureous olive-green where seen
above, the remainder of the feathers blackish with narrow white tips :
bill dusky, and legs brown. Common at Darjeeling.
18. *G. affinis*, (Hodgson). Himalaya.
19. *G. chrysopterus*, (Gould). Himalaya. •
20. *G. erythrocephalus*, (Vigors). Himalaya.
21. *G. variegatus*, (Vigors). Himalaya.
22. *G. phæniceus*, (Gould), *ante* : probably *erythropterus*, Hodgson,
mentioned in XII, 954, note. Himalaya.
23. *G. cachinnans*, (Jerdon), *ante*. Neilgherries.
24. *G. lineatus*, (Vigors) : *Cinclosoma setiferum*, Hodgson ; proba-
bly *C. striatum* of Royle's list. Himalaya.
25. *G. imbricatus*, nobis. Bootan.

Of the above list, twenty of the species are illustrated by mostly
very fine specimens in the Society's museum : the desiderata are the
Neilgherry *G. Delesserti*, the Assamese *G. gularis* and *G. McClel-*

landii, the Javanese *G. rufifrons*, and the Chinese *G. perspicillatus*, which last Mr. G. R. Gray identifies with *G. Belangeri*, though I suspect erroneously. In my former synopsis, are included also a *G. Reinwardii* and *G. capistratus*; but the former has proved to inhabit Senegal (vide Swainson's 'Birds of W. Africa', I, 276, *Nat. Libr.*), and the form of this species, which is the type of *Crateropus*, Sw., would appear intermediate to *Garrulax* v. *Ianthocincla*, and *Malacocercus*, Sw., so that *Ianthocincla* appears to have been erroneously identified by Mr. Swainson with his *Crateropus*, and the two groups are recognised separately by Mr. G. R. Gray;—and the latter species, or *G. capistratus* (*Cinclosoma capistratum* of Vigors,) proves also to be the *Sibia nigriceps* of Hodgson, the *Hypsipetes gracilis* of McClelland and Horsfield, and it is in all probability the *Cinclosoma melanocephalum* of Royle's list; wherefore it will now range as *Sibia capistrata*, (Vigors).

It may here be added, also, that *Leiocincla plumosa*, nobis, *J. A. S.* XII, 953, is the *Actinodura Egertonii* of Gould; and that *Cinclosoma* ? *nipalense*, Hodgson, v. *Sibia nipalensis*, II., though allied to *Actinodura*, will not range therein (as has been suggested), but remain as the type of *Ixops*, Hodgson (XII, 958), connecting *Actinodura* with *Sibia*. Accordingly, the four supposed species of the latter genus enumerated in XII, 958, are now reduced to two, from the ejection of the first, and identification of the second and fourth; nor are the two species that remain very closely allied to each other.

The following is a *Crateropodine* genus, allied to *Pellornium*, and bearing some vague resemblance to the *Malacopteron* group.

Malacocincla, nobis. 'Bill as long as the head, rather stout, high, much compressed, the tip of the upper mandible pretty strongly hooked, but indistinctly emarginated, and its ridge obtusely angulated towards the base, the remainder scarcely angulated; gape but little widened, and feebly bristled; nostrils large and subovate, with oval aperture to the front, a little removed from the base of the bill: tarse of mean length and strength, as long as the middle toe with its claw; the claws suited for perching, compressed, and moderately curved, that of the hind toe rather large. Wings moderate, with the first primary reaching to about their middle, the second much shorter than the third, and the fourth longest: tail rather short, weak, and even, except that its outermost feathers are a little shorter than the rest.

Plumage full and lax, the coronal feathers somewhat elongated and of a spatulate form.

M. Abbotti, nobis. Length about six inches, or a trifle more; of wing three inches; and tail two and one-eighth: bill to gape not quite an inch, and tarse the same. Colour plain olive-brown above, tinged with rufous on the rump and tail, the upper tail-coverts ferruginous-brown: under-parts paler, the throat and middle of the belly white, the ear-coverts, sides of the breast, and flanks, rufescent, and the lower tail-coverts weak ferruginous. Bill chiefly pale horn coloured; and legs light brown. Discovered by our industrious contributor, Capt. Abbott, in the island of Ramree, Arracan; and since sent by Capt. Phayre from other parts of the same province.

Alcippe Phayrei, nobis. This genus is defined, and four species of it described and others indicated, in *J. A. S.* XIII, 384. The present one is most allied to *A. poiocephala*, (Jerdon,) and also to *Siva nipalensis*, Hodgson, of the *Leiotrichane* series: but is distinguished by its much less rufescent hue, especially on the tail and its upper and lower coverts, which are devoid of such a tinge, or the upper tail-coverts retain it only in a very slight degree. Length about five inches and a half, of wing two and three-quarters, and tail two and a half; bill to gape under three-quarters; and tarse seven-eighths of an inch. Upper-parts slightly fulvescent olive-brown, the crown ashy, and wings, particularly the large alars, margined with somewhat deeper fulvescent; lower-parts fulvescent-whitish, whitest on the throat and middle of the belly: bill dusky above, below pale; and legs light-coloured: outermost tail-feather five-sixteenths of an inch shorter than the middle ones. Inhabits Arracan, where discovered by Capt. Phayre.

In naming the two preceding species, I have merely rendered homage due to two gentlemen who have made great efforts to investigate the Natural History of the districts which have been placed under their administration. It is a kind of honour which is in the power of the naturalist to award; but it has been so much and so egregiously abused, that the distinction is no longer a very marked one, such as originally it was intended to be. The evil, however, it is to be hoped, is now working its own cure: and there is reason to believe that naturalists in general begin to feel the impropriety of underrating their

privilege of perpetuating the remembrance of the benefactors of their science, and especially of those who have contributed largely to the stock of materials from which information is derived;—a privilege which assuredly should be exercised charily, and with due judgment and discrimination; such as would really render it an honorable and coveted distinction, and be understood to serve for a lasting memorial and acknowledgment of services that had been done for science.

Iora, Horsfield. In *J. A. S.* XIII, 380-1, I indicated three described species of this genus, which had been erroneously considered identical; but at the time of writing that notice, I was acquainted only with the female of *I. scapularis*, which alone is figured and described by Dr. Horsfield. Both this and *I. typhia* are common in the vicinity of the Straits of Malacca—the male *I. scapularis* having the throat and fore-neck dark green, uniform with the upper parts, and no yellow except on the orbital feathers. According to Mr. Strickland, Dr. Horsfield has lately obtained a new *Iora* equal in size to the small *Oriolus xanthonotus*; and Mr. Strickland regards this approximation of size as tending to corroborate his opinion that the genus *Iora* is allied to *Oriolus*,—an opinion to which, however, with all deference, I do not feel disposed to accede. To the synonymes of *I. zeylonica* (which specific name was based on the *Ceylon Blackcap* of Brown's Illustrations,) must be added *Muscicapa melanictera*, Gm., founded on Brown's *Yellow-breasted Flycatcher*, also from Ceylon.

Chrysomma, Hodgson: founded upon *Timalia hypoleuca*, Franklin, v. *T. Horsfieldi*, Jardine and Selby. With reference to Mr. Frith's statement (*J. A. S.* XIII, 360,) of there being a second species of this form in Bengal, differing from the common one in being about half larger, I may remark that *Chr. hypoleucos* is subject to some variation of size, and especially of depth of colouring, more particularly upon the crown; some having this part dusky-vinaceous, with a tinge of the same on the rest of the upper parts, while others have the whole upper parts paler, and of an uniform rufescent-brown, brightest on the wings: the latter, however, appear to be younger birds, and certainly are not different in species from the dark-headed ones. *Chr. hypoleucos* appears to be very generally diffused throughout India.

August, 29th 1845.

(To be continued.)

A notice of the Alphabets of the PHILIPPINE ISLANDS. Translated from the "INFORME SOBRE EL ESTADO DE LAS ISLAS FILIPINAS," of DON SINIBALDO DE MAS, Madrid January 1843. Vol. I. p. 25. By HENRY PIDDINGTON, Sub-Secretary Asiatic Society, &c. &c. With a plate.

The Indians were not strangers to the art of reading and writing. I give (fig. 1. of the annexed plate) some Alphabets of different provinces which I have procured. It will be seen, at once, that they have all a common origin, or rather that they are one and the same. The little communication amongst these people for many years or ages, introduced alterations in their caligraphy as in their language, which was also probably at first but one stock.

Father Juan Francisco de San Antonio says, that they write like the Chinese, in perpendicular lines, and this error^d was copied by Father Martinez Zuniga, M. Le Gentil and others, who have written on the Philippines. Nevertheless, by documents which I have had in my possession, particularly from the archives of the convent of St. Augustin, in Manilla, I have ascertained that it is read from left to right, like our own. In fig. 2, is represented a fragment of a transfer of landed property, written in Bulacan in 1652, on Chinese writing paper :

And in fig. 3, two signatures with their equivalent renderings of the names, in our characters. To this same family of written characters would appear to belong (fig. 4) an inscription cut on a plank, which was found in 1837, by a detachment of Troops, in the mountains inhabited by the savage tribes called Igorrotes.

But withal, no books nor any kind of literature in this character are to be met with, except a few amatory verses written in a highly hyperbolic style, and hardly intelligible. It would appear, that their letters partook of this oriental redundancy.

*Register of Indian and Asiatic Earthquakes for the year 1843. By
Lieutenant R. BAIRD SMITH, F.G.S., Bengal Engineers.*

1. *Earthquake of the 2nd January, 1843.*—This shock was experienced at Manilla, at a quarter-past one on the morning of the 2nd January. It consisted of two distinct vibrations with a very short interval between them, the first having a duration just perceptible, the second lasting nine seconds. I include in this Register all shocks in localities connected with the great Volcanic band of the Moluccas, because the northern extremity of this band is found in our own Territories, and the whole becomes thus connected with India Proper. The shock under notice appears to have been slight, but it was the forerunner of a series, one of which was of great violence.

2. *Earthquake of the 4th January, 1843.*—This earthquake occurred at Singapore, about midnight of the 4th, and on the same date and about the same hour two shocks were experienced at Malacca. My information relative to these shocks is very limited, being confined to a notice of their occurrence.

3. *Earthquake of the 6th January, 1843.*—The greatest force of the shock of the 6th January, so far as our information extends, was felt at Pulo Nias, in the vicinity of Java and Sumatra. For the following extract from the "Singapore Free Press," detailing the effects of the earthquake, I am indebted to H. Cope, Esq.

Singapore. Below will be found an account of an earthquake at Pulo Nias, translated from the "Java Courant," which we have received from our correspondent. It will be observed, that this earthquake occurred about the same time with the shocks which were experienced in Manilla, Singapore and Penang; but that it was of a much more violent nature, and attended with disastrous circumstances, which were happily unknown in other instances. In this case the phenomenon partook of all those fatal and violent effects which have usually been the accompaniments of similar convulsions of the earth in Java and Sumatra.

Account of an Earthquake at Pulo Nias.

(Translation from the Java Courant, April 5th, 1843.)

Ignorant of the dismal scenes on which it would rise next morning, the sun set peaceably behind the Goenong (*mountain*) Sie Foli, (Island of Nias) on the evening of the 5th of January last.

At 6 P.M. the Thermometer (Fahrenheit) marked 83°, the sky was clear, the sea calm, the air pleasant and mild, only a breeze from the Westward (a circumstance of rare occurrence in these parts) was felt.

The inhabitants of Nias, not aware of the fate that awaited them, were enjoying the repose of sleep, when at or about midnight they were roused by heavy shocks of the earth, which at first were felt in a slight degree from the wind shifting to the Northward, but became every moment more violent; so that no fixed direction could be given to them, the shocks subsiding into a complete trembling of the earth, so that at every instant it was expected the whole Island would disappear.

The shocks continued without intermission during nine minutes, the ground was moved up and down, like the rocking of a swing; to stand up or to walk was alike impossible; houses were destroyed, burying beneath their ruins the ill-fated inhabitants.

A portion of the Mount Horiffa, close to Goepong Sie Foli, together with the fortifications of the Benting and the other Government buildings, with the exception of the barracks and Commandant's house, were totally destroyed; Coco and other large trees which for upwards of a century had withstood the hand of Time, were torn up by the roots, and the ground divided itself, shewing deep yawning chasms from which trickled a blackish frothy liquid.

No subterraneous noises were heard, being probably drowned by the dreadful din of falling mountains, houses and trees, joined to the thrilling shouts of the population.

About nine minutes passed in the fear of immediate destruction, the inhabitants began gradually to recover from the trance in which they lay plunged by this sudden calamity, people appearing from beneath the ruins of a house, or from an abyss into which they had been plunged; the one to save an aged mother, the other his helpless child.

The dreadful scene was lit up by the most beautiful sky and sparkling stars. Not long the unfortunate Islanders were permitted to exult in the hope of their miraculous escape. Again, the earth began to tremble, and repeated shocks were felt with new force. Suddenly a tremendous wave rose from the South-East, and with awful noise, spreading itself over that part of the Coast, bore every thing before it, sweeping away men, women, cattle, houses, and even whole villages;

so that in a single moment, the same spot where cattle were grazing, had become the abode of fishes.

The large Campong Mego, about one Dutch mile, South of Goenong Sie Foli, was entirely washed away by the wave; and many days afterwards the dead bodies of the victims of this woeful destruction might be seen on the beach.

The same wave penetrated into the neighbourhood of Goenong Sie Foli with such violence, that the prows lying in the river were thrown upon the shore, 100 or 160 paces from their anchorage; among the number was the Government Cruising Schooner, No. 23. The new Bazar, consisting of wooden houses, and situated on the left side of the river, was also entirely washed away. The inhabitants who escaped fled to the Benteng, 60 or 100 feet above the sea, to implore the succour of others as miserable as themselves.

This phenomenon continued until half-past four in the morning, the shock being felt at intervals of two minutes, when another earthquake was experienced, which was more violent than the first one, and continued for about six minutes. The shock generally came from the West, going to the North, changing however directly to the South. The trembling of the ground, although more slightly, was felt for several days afterwards.

The authorities here have immediately caused the necessary measures to be taken, and despatched a Government vessel to give assistance to the unfortunate inhabitants of the island of Nias.—D. F. S.

Padang, 23rd March, 1843.

Pulo Nias, the seat of the catastrophe just detailed, is a small island off the West Coast of Sumatra, in about 2° N. Lat. and 98° E. Long. The intensity of the Earthquake, however great in Pulo Nias, would appear to have diminished much at a short distance from it, since no notice of its effects on the adjoining coast of Sumatra is given, and from the silence of the writer of the above account, we are led to infer that the shock if felt at all at Padang, was there very slight.

Pursuing a North Easterly direction, this same Earthquake was experienced at Singapore and Penang. The following extract from the "Penang Gazette," details the effects of the shock at these two places.

“ We noticed in our paper of the 7th instant, that a shock of an Earthquake had been experienced here about half-past 12 on the morning of the 6th, and we observe from the “ Singapore Free Press ” of the 12th, that a shock had been felt there precisely at the same time. In both places it was very slight, but here more generally, and on the hill at least, more severely felt than at Singapore. It is rather remarkable that on the 8th, when we had a repetition of the Earthquake about 2½ P. M. the shocks on that occasion were also more distinctly felt on the hills than in the valley. The oscillations were in both places of very short duration, and in Penang, as far as we can learn, the direction was from South to North or the contrary, but at Singapore it is stated to have been from East to West. For some time preceding this subterraneous commotion, the weather at Singapore had been unusually dry and hot for the season, the atmosphere clear, and the wind from the North East, and nothing indicated a change, until half an hour before the shock, when the heavens became ‘ quite black and chilly.’ Here also it was preceded by the same kind of weather, which however is usual with us at this season, but no sudden change or phenomenon of any kind was noticed immediately to precede the shock, excepting that, as we have learned, the rats in a house in town were heard to be particularly noisy and riotous about the roof. In both places, however, a marked change followed the convulsion. At Singapore, at 7 A. M. the following morning, heavy rains set in, and continued unremittingly for eleven days; and in Penang we experienced for several successive days sudden gusts of wind interrupted by calms, and in the evening squalls from the N. and N. E. with heavy clouds, rain and thunder in these directions, no rain however fell upon the Island, excepting a short partial shower on the 15th, and the weather has again resumed its dryness and clearness. At this time not a blade of grass is to be seen, and vegetation of every description is suffering excepting where water is applied.

“ Shocks of Earthquakes have on several occasions been felt at Penang; within the last ten years we have had four different shocks, and with the exception of the last, they have always happened during the latter months of the year. The first took place in November 1833, the second in August 1835, the third in September 1837, and the fourth on the 6th instant, as above stated. It appears therefore that here they occur periodically, and that the last interval has been more than double

the usual length. Of these, the shock in September 1837, was, by all accounts, the most severe, and the oscillations, as in the present case, are said to have come from South to North, and to have lasted full a minute and a half. It is said that on that occasion, several herds of cattle in the neighbourhood were observed running in the utmost confusion in all directions, that lamp and picture-frames oscillated, that the Roman Catholic Church bell rang of its own accord, that quantities of large shot piled up in the Fort were thrown down and scattered about, that a stone wall of a substantial building in town was rent, and the whole inhabitants were thrown into a state of consternation. The shipping in the harbour did not experience this shock, nor did the sea appear agitated; five days subsequently however another smart shock was felt, and was followed by a very heavy squall from the N. W. and great agitation and rise of the sea in the harbour. The tide overflowed the Northern beach, and flooded the compounds and lower rooms of the houses in the neighbourhood. The convulsion was experienced at the same time at Achen and along the Pedier Coast, and it is said that these places sustained considerable damage. By the late shock a clock in town was stopped, and some felt a dizziness in the head and a sensation like sea-sickness, but we have not heard of any other phenomenon attending this Earthquake. It may be that neither this shock nor any of the previous ones we have noticed are to be supposed the effects of convulsions taking place immediately below us, but to have been transmitted from some neighbouring region within the range of Earthquakes, such as Sumatra. The recent one may be described as having been a mere tremor of the ground, more than a shock."—*Penang Gazette*, 28th January, 1843.

From the facts now detailed, it appears, that the point of greatest intensity of the shock of the 6th January 1843, was in the immediate vicinity of, if not directly beneath, the island of Pulo Nias. The south coast of the island suffered most, since it was upon it that the destructive wave first broke. The facts stated are not sufficient to warrant any conclusion as to the cause of this great wave; it may have arisen from violent volcanic action in the adjoining bed of the sea, or it may have been the reflux of a wave generated by the sudden upheavement of the coast of the island itself. In both cases it is probable, the sea would first have receded from, and then returned in force upon the coast, and in the latter part of the upheavement would have remained, but no

indication of any such phenomena are given, and the point must remain an undecided one.

The general direction of the shock was from South-West to North-East; from the relative geographical positions of Pulo Nias and Singapore, the direction in the latter island would be from West to East, just the contrary to that specified in the extract above given; in Penang, on the other hand, the course would be from South to North, as correctly stated by the writer in the "Penang Gazette."

Indications of atmospheric disturbance accompanied the shock at Singapore and Penang, and most probably at Pulo Nias also, although it is not so stated in the published notices. At Singapore, nearer to the focus of the shock, these disturbances were greater than at Penang, and it is a fact to be noted, that at the former place, very heavy rain immediately followed the convulsion.

4. *Earthquake of the 8th January, 1843.*—This shock, which was very slight, was experienced at Penang, about midnight of the 8th January. It was not accompanied by any phenomena requiring special record, and was the last of the series which in the early part of the month of January were experienced throughout the Eastern islands.

5. *Earthquake of the 8th February, 1843.*—This shock was experienced at Ahmedabad in Goojerat, at 2 A.M. on the 8th February. The direction was from N. E. to S. W., and four distinct vibrations of the earth were observed, the entire duration being about eight minutes. Before the shocks were felt, there was a great rumbling noise as if carts or carriages were passing by.

These shocks were evidently of slight intensity and limited range, there being no notices of their having been experienced elsewhere than in the neighbourhood of Ahmedabad. So far as inference may be made from their direction, they would seem to have emanated from the tract of the Vindayas.

The early part of the month of February 1843, was remarkable for other indications of volcanic activity. On the 6th, one of the small volcanic hills on the Arracan coast, near to the station of Kyouk Phyo, exhibited a sudden eruption; some particulars of which are given in the following extract from a letter to the address of H. Piddington, Esq., kindly forwarded to me by that gentleman.

“ Kyouk Phyoo, 7th February, 1843.

“ We however had last night a most magnificent volcanic eruption. The mountain, which is of moderate height and shaped somewhat like a pyramid, is about three or four miles from the station, which was rendered as light as noonday, although it was midnight at the time. The eruption commenced at about 11 P.M., unaccompanied by any rumbling, but throwing up masses and particles of lava to an immense height, and presenting a most magnificent spectacle, visible all round the country. The weather had been for some evenings previous, close and threatening, although the glass kept up, varying from 30-12 to 29-98 for the last five or six days. The fires gradually went out, and all was still again by about half an hour after midnight. This eruption takes place from what I hear, generally once in two years, sometimes annually.”

6. *Earthquake of the 1st April, 1843.*—The Earthquake of the 1st April 1843, was experienced in the Deccan ; I shall trace its course so far as the materials available permit, from North to South.

The most northerly point at which the shock was experienced was Sholapore ; (Lat. 17°40' North and Long. 76° 3' East) the effects of the Earthquake at this place are detailed in the following extract from the “ Bombay Times.”

“ The following extract from a letter, dated Sholapore, 1st April 1843, gives an account of an Earthquake which seems to have visited the Deccan.

“ I was suddenly awakened this morning about half-past 4, by a loud rumbling noise very like thunder, only more continuous and monotonous ; and while speculating on what the possible cause could be, my bed began to shake in a very unequivocal manner, so as to leave no doubt of an Earthquake ; the noise apparently came from the South or South-West, preceding the shock and lasting about two minutes, and the shock, which though slightly felt in a tent, was more severely apparent in houses, and continued, I should think, about two seconds, perhaps hardly so much. I hear however, that in the town at the foot of the hill of Sholapore, the shock was much more severe, that the ground rocked considerably, and plaster fell from the roofs and walls of the houses causing infinite alarm to the people, such an event never having occurred here before within the memory of any one. One of my Tappal (post) runners informs me, that the noise and shock met him about six miles

North-East of this, and that the ground rocked so much that he ran to a date tree for support ; but this moving also, he threw himself on the ground, and did not venture to move till all was over. I suppose the course of the Earthquake therefore to have been nearly South-West and North-East ; and if you hear more of its beginning and ending, this may serve to give you some idea of its course ; of the breadth of its influence I have of course no idea. All yesterday was remarkably sultry and oppressive, nor was there a breath of air all night, a very unusual thing here. What between the earthquake and comet, the people here are much perplexed, and wise Brahmins are prophesying wars, tumults, and famines, to the terror of the lieges.

“ An old gentleman who has just called, informs me, there was an Earthquake here, the year Tippoo was disposed of ! I have no means of ascertaining the truth of this ; but is this country in the track of any volcanic current or influence ? Certainly Earthquakes are not common occurrences.”

The next place from which we have a notice of the shock, is Mucktul (Lat. $16^{\circ} 43'$ N. Long. $77^{\circ} 35'$ East). This notice is contained in the following extract from the “ Madras Spectator” of the 26th April, 1843.

“ A correspondent at Mucktul has favoured us with the following notice of the shock of an Earthquake felt there, as at Bellary and Sholapore on the 1st of this month. We apprehended with our correspondent, that the maximum intensity of the shock passed through Bellary in a line parallel to the direction of the Western Ghauts, its violence subsiding further Eastward, as at Mucktul.

“ The Earthquake was felt here very distinctly on the morning of the 1st about a quarter to 5 o'clock. The undulating motion was not sufficiently perceptible to enable one to judge of the direction of the shock ; here was merely a slight tremulous motion accompanied by a rumbling noise similar to that of a carriage passing a drawbridge. I suspect from your remark in your paper of the 12th instant, that its maximum point of intensity was at Bellary, or between this and Bellary. At Singsoorgoor and Shorapore, both places nearer Bellary than this is, it was felt much stronger than here ; but at Hyderabad, about one hundred miles from this station, I suspect there was no shock, otherwise I should have heard ; Bellary is also about one hundred miles from Mucktul. The morning of the 1st was here also excessively hot and close.”

Our next notice of the shock is from Bellary (Lat. $15^{\circ} 5' N.$ Long. $76^{\circ} 59' East$), where the following phenomena were observed, and are detailed in the "*Madras Spectator* :"—"We are indebted to a friend at Bellary for notice of the shock of an Earthquake which was felt there on the 1st instant, at about a quarter before 5. That morning a rumbling noise was heard described as resembling the well known sound (to railway travellers) of blowing off the steam from the engine. The sound increased in loudness to that of a moderate peal of thunder, and with it an undulating motion was felt, which increased in intensity till the whole cantonment shook. 'My bed,' says the writer, 'trembled till I felt almost giddy; the sound then decreased, and with it the agitation subsided.' The direction of the shock appeared to be from South-East to North-West, the atmosphere seems to have sympathised with this subterranean disturbance, the previous night having been a very stormy one, and at 4 on Saturday morning it suddenly became oppressively hot and still."

I am indebted to H. Piddington, Esq. for the following interesting notice by Captain Newbold, Madras Army, of the effects of the shock of the 1st April 1843, at Kurnool. This notice ought to have preceded that from Bellary, but it was accidentally omitted.

"Kurnool, 23rd February, 1844.

"Observing from the pages of your Journal that some researches are being instituted into the phenomena of Earthquakes, the following extract from my memoranda of an Earthquake that was felt here last year, may add to the recorded data on this head.

"Kurnool, Long. $78^{\circ} 7'$ Lat. N. $15^{\circ} 50'$: approximate height above the sea 900 feet. April 1st 1843, about 5 A.M. awakened by the shock of an Earthquake, accompanied by a subterranean noise like that of the rumble of Artillery at a distance. It lasted only some seconds; the noise appeared to come from the North-East, and died away to the S. W. It appears to have been felt at Bellary, which is about seventy-three miles direct distance W. S. W. from Kurnool, about the same time. There was nothing particular in the state of the weather. The comet which I first observed here on the 4th of the preceding month, was then visible, and its advent had been accompanied by a sudden and unusual rise of the Tumbuddra, which had swept off the numerous native gardens in its bed, a catastrophe which both the Affghans and Hindoos of this

place concurred in attributing to the inauspicious influence of the 'Tailed Star.'

"Some of the older natives of this part of India assure me, that Earthquakes usually happen in the hot season. East of this in the Jemaconda district, separated from Kurnool by a high chain of the Eastern Ghauts, slight shocks of Earthquakes are more frequent than in other parts of South India. This district is situated on the plutonic, hypogene, and basaltic rocks which form a platform between the trap of the Deccan—the largest known continuous sheet of ancient lava in the world—and the great active volcanic band that runs Southerly down the Bay of Bengal, crosses the Equator by Sumatra into the Eastern Archipelago, thence Easterly embracing Flores, Java, and Timor, and the whole chain of the islands to New Guinea: whence the main trunk proceeds Northerly by the Moluccas and Philippine Islands, terminating to the North in the Peninsula of Alaska, in about the 59th degree of longitude.

"Kurnool is situate about 76 miles in a direct line W. by S. from Jemaconda, on the great line of drainage of this part of India, at the confluence of the Tumbuddra and the Hendri, on the limestone associated with the diamond sandstone, which here overlies the plutonic rocks previously alluded to; the latter constitute the base of the whole of Southern India, and are seen outcropping immediately in the vicinity of Kurnool.

"The most Southerly point to which the shock under notice would appear to have reached, is Hurryhur, Lat. $14^{\circ} 30' N.$ Long. $75^{\circ} 59'$ East. The following is the account of the shock as felt at that place. April 2nd. A slight shock of an Earthquake was felt here a little after 4 o'clock yesterday morning, attended by a dull noise, as if it were the rolling of a carriage at a distance.

"It was predicted the day previous by the Bramins, that a phenomenon resembling a blazing man with a sword in his hand would be observed the same night in the heavens, and numerous have been the spectators anxiously expecting its appearance the greater part of the night; but for all their trouble (although many were up till 4 A. M.) they were disappointed.

"The weather previous to the above shock had been exceedingly warm, but since we have had a few showers of rain, and it is now cooler."

From the preceding details, the ascertained limits of the shock of the 1st April are Sholapore on the North and West, Kurnool on the East,

and Hurryhur on the South. The intensity would appear to have been greater at the intermediate point, Bellary, than at any other, leading to the inference that this place was nearer to the focus of the shock than the other stations at which observations were made. The general direction of the shock was evidently parallel to that of the Western Ghauts, namely from South-West to North-East. A peculiar state of the atmosphere was observed at four of the five stations where the shock was felt; an oppressive closeness of the air and great heat preceded the shock, and after it passed, a change was experienced at Hurryhur by rain.

Earthquake of the 6th April, 1843.—This shock was experienced in various parts of Assam. The following extracts give details :

Extract from the "Friend of India :"—"A letter from Sibsagur, dated April 7th, says, a very singular meteoric appearance was observed here a few evenings since. It occurred a little before 9 o'clock, on the evening of the 4th; a very brilliant light suddenly illuminated the whole atmosphere, and on looking up a large cluster of falling stars was seen rapidly descending towards the East in an oblique direction. These disappeared in a few seconds, and about a minute afterwards a loud report was heard resembling that of cannon, resulting doubtless from explosion of the luminous mass. The report was also heard at Jaipore. Last evening at half-past 8, we had several very severe shocks of an Earthquake; the vibrations lasted for about five minutes. Another slight shock was felt at a quarter-past 1 o'clock this morning."

The following extract from Captain Hannay's Journal, kindly communicated to me by Mr. Piddington, gives an account of the shocks as experienced at Debrooghur :—"After a very hot day and close sultry evening, a severe shock of an Earthquake at Debrooghur, lasted several minutes. The motion, however, was only trembling; affecting those houses which had posts built up by walls. Direction appeared to be from W. to S. W.

"*April 7th.*—Slight shocks at Debrooghur at midnight. Both these Earthquakes felt at Sibsagur, Jeypore, and all over Upper Assam."

At Jeypore the shock is thus described, under date *7th April* :

"Last night, nine or ten minutes past 8, we felt a smart shock of an Earthquake, and in four or five minutes more, another shock more severe than the first, and which lasted, I should think, full two minutes. The

doors and windows rattled at a great rate, and one of our lads, who was standing on the bank of the river at the time, said he was near being thrown into the stream: it was the most severe shock I ever felt in Assam. Its course appeared to be from East to West; some of the residents think there were three shocks, but I only noticed two. The weather has been unusually warm for the last two or three days.—*Hurkaru Paper.*

8. *Earthquake of the 11th April, 1843.*—This shock was felt very smartly at Landour, and occurred about five minutes past 8 A.M. The doors and windows of the houses shook and rattled loudly. From observations made on the undulations of liquid in a cup, the direction was from North to South, or from the interior of the hills towards the plains; the duration of the shock was estimated at thirty seconds.

The same shock was experienced about the same time at Hurdwar and Meerut, at both places being very slight, and unaccompanied by any circumstances worthy of note.

9. *Earthquake of the 12th May, 1843.*—The following is an account of this shock as experienced at Penang, taken from the “Penang Gazette” of May 13th:—“Yesterday about 1 P.M. an Earthquake was felt here; the motion was very distinct, it was like a succession of waves; and very different from the quick vibration of the shock experienced in January last: after the first two or three waves a slight pause, when it continued, the undulation being greater; persons sitting were moved from side to side or backwards and forwards in their chairs in a direction from West to East, or from N. W. to S. E., and hanging lamps were swayed to and fro in the same line. It lasted five or six seconds. It came in the direction of Sumatra.”

We have no account of this shock from any other point than Penang.

10. *Earthquake of the 3rd of June, 1843.*—This shock was also of very limited range and slight intensity; the only place where it would seem to have been felt being Titalayah, at the base of the Sikkim hills, on the road to Darjeeling. The following extracts from the “Hurkaru” newspaper furnish details.

“By a letter, which we have just received from Titalayah, it appears that that place was visited by an Earthquake on the morning of the 3rd instant. A smart shock of an Earthquake was felt here this morning; I could not note the precise time, not having any time-piece, but I think it was about 10 o'clock. It appeared to pass from North

to South-West, and lasted about three seconds, accompanied with a rumbling noise, like distant thunder.

“The weather for the last three days has been very sultry, with great masses of heavy dark clouds in the North: but this morning about 7 o'clock a thunder-storm passed from North to South-East, with heavy rain, continuing for upwards of two hours; it was perfectly calm at the time of the shock, but the wind rose immediately afterwards, blowing in sudden and heavy gusts from the North-East, with distant thunder from the Westward.

“No damage has been done that I am aware of, but the natives were much alarmed; some, who were at work on the road before my house, threw down their tools and ran away.”—*Bengal Hurkaru*, 10th June.

11. 12. 13. *Earthquakes of the 15th, 16th and 17th June, 1843.*—This series of shocks was experienced in Assam. The first, that of the 15th, is thus noted in Captain Hannay's Register—“At 11 A.M. a smart shock of an Earthquake, with a vertical motion.”

The second, that of the 16th, is thus described in a letter from Jeypur: “On the 16th, fifteen minutes past 8 P.M. we felt the most severe shock of an Earthquake I have noticed in Assam; we had a slight shock the day previous at noon.” Mr. Masters, in a list of Earthquakes felt in Assam, forwarded to me by Major Jenkins, the Commissioner, to whom I am indebted for many similar acts of kindness, thus notices the same shock—“At 8h. 45m. P.M. a smart shock at —.”

The last of the series is described in Captain Hannay's Register in the following terms:—“June 17th, 8 P.M. a very smart shock; at first slight and followed by a severe one, motion undulating, and from the position of a clock which was stopped, must have come from S. W. or W. It lasted altogether about a minute; the weather rainy, with occasional light squalls from S. W. These shocks were felt at Delava, Jaipur, and Sacherah; that of this date at a few minutes past 8, reported by the Officer at Sacherah to have thrown down a portion of the bank of the Bur-rumpooter.”

14. *Earthquake of the 17th June, 1843.*—This shock is of interest, as being the only instance of an Earthquake in Ceylon of which any notice has been obtained; reference is made in one of the extracts that follow to a shock in 1823, that affected this Island, and these two cases are all that have as yet been found on record.

The following extract from the “Colombo Observer” of the 19th

June, details the effects of the shock as experienced at Colombo :—" On Saturday morning, at about half-past 12, a slight shock of an Earthquake, which lasted half a minute, was felt at Colombo.

" Persons who happened not to have gone to bed felt the ground to tremble, and heard furniture and even roofs of houses to crack. Many amusing anecdotes are told of those who were awoken by the shock ; some supposing tricks were being played upon them, others that robbers were in their houses, and several that people were under their beds."

The " Ceylon Herald" of the 20th, gives the following particulars :

" On Friday night, the 17th, at about half-past 12, Colombo and its vicinity were visited by an Earthquake, the most terrific of all natural phenomena. It was however so slight, that many people were not at all aware of it, and what was worse, they ~~would~~ hardly believe it when they were informed.

" Three distinct shocks were felt at very short intervals, all three not perhaps so long as a minute ; great numbers were aware of two shocks, and all agree that the last was the smallest. Most people having retired for the night, they were awakened by their beds being moved upwards in a most remarkable manner, while the curtains moved backwards and forwards, doors and windows shook, and occasionally a creak was heard from the rafters and crockery in the godowns ; but although fears were entertained that injury was done to the houses, not a single instance of the kind has been brought under notice.

" The officer on guard felt the guard-room vibrate ; and in another quarter of Colombo a gentleman writes, that his whole house moved the same as a ship when struck by a heavy sea.

" From Galle we learn, that it was felt there at the same time, and with no greater force. As yet we have heard nothing of its being felt in the Central Province. It is very rarely that Earthquakes happen either in Ceylon or Southern India ; we have heard of one in 1823, which at Hambantotte caused the glass on the sideboard to jingle, and it was pretty generally felt throughout the Island.

" It frequently happens, that an extraordinary fall of the Barometer is observed to precede an Earthquake, but we have not heard yet whether this symptom of its approach was noticed here or not ; such a fall of the Barometer lately attracted considerable attention on the Coast, in connexion with the late storms, and it will be curious to know whether it

was observed on this occasion. Not long after the Earthquake, we had one of those violent squalls which have been so frequent of late as to pass almost without observation ; but we have been assured by some of the oldest residents here, that for many years past there have not been such violent storms of wind and rain. As if the electricity in the earth and atmosphere, or whatever else causes storms and Earthquakes, were exhausted, we have had since Saturday a sudden transition to settled weather, with every appearance of its lasting for some time."

With the exception of its locality, there is nothing requiring note in this shock.

15. *Earthquake of the 10th August, 1843.*—Two notices of this shock has reached me ; one from A. Campbell, Esq. at Darjeeling, the other from E. Ravenshaw, Esq. at Patna. Dr. Campbell writes as follows, under date 11th August, 1843.

"At 15 minutes to 5 p. m. yesterday, 10th August, by my watch, which was 15 minutes fast by sundial time, we had a shock of Earthquake here, which lasted 20 seconds. Its course was N. W. by S. E. The motion was horizontal : no damage done to any thing.

"As you have expressed a wish to be furnished with information regarding Earthquakes, I have the pleasure to inform you, that a slight shock was experienced at Patna on the 10th instant, at about 4½ p. m. A letter from Tirhoot (Muzufferpoor) mentions, that it was also felt there on the same date and about the same hour."

In a very interesting letter, under date the 9th September 1843, Mr. Ravenshaw communicates the following information :—"A few days after I wrote to you about the Earthquake of the 10th August, my Sheristadar told me he had heard springs of water (Bumbâs) had suddenly made their appearance in several villages of the district. I immediately told him to send a man to the spot to bring me some of the water, and all the particulars he could collect regarding the date of their appearance ; their number, site, &c. The man returned with seven bottles of the water, and a note in Persian from a person on the spot, stating seven Bumbâs had appeared at Dostmahommedpoor, Purgunnah Azemabad, about twenty miles East of Patna. Of these two were large and flowing rapidly, and five small ; about a koss West of the village there were seven or eight more, of which three were constantly flowing, the others smaller and less active. He said that others had been heard of at Moza Tilwur, Purgunnah Bhum-

poor, and at Jugutpoor Chedee, Purgunnah Gyaspoor, to the Eastward of Dostmahommedpoor. Another native told me he had heard of a similar occurrence at Moza Soojava, near Jehanabad, half way between this and Agra; some of them are said to be hot springs. I tasted some of the water with oxylate of ammonia, and it proved to be strongly impregnated with lime, like all the water of this district. The Persian letter reported that the Bumbás made their appearance, or rather were first observed, on the 13th Sawun, or Monday 24th July, which is 16 days before the Earthquake; but I think this must be a mistake, as they were not mentioned to me until several days after I had written to you: it is possible however there may have been another Earthquake, which was not felt at Patna. At any rate I have thought it right to send you this information, which, if not useful, may be interesting.

“Any connection between the appearance of ~~These~~ Springs and the Earthquake is doubtful, the evidence being against, rather than in favour, of such connection; at the same time the occurrence is rare and interesting, and deserves to be recorded, although its causes are too obscure to be traced satisfactorily.

16. 17. *Earthquake of the 3rd September, 1843.*—These shocks were felt in Assam, and are recorded by Captain Hannay, in whose memorandum the following remarks occur under the above date:—“After a hot and sultry day (the 2nd) as ever I felt, the clouds gathered to the South-West, indicating rain, but passed off without any; night very close and sultry: awoke by a smart shock of an Earthquake, cannot speak as to direction.” Again, under the same date, at 7½ P. M. it is remarked, “After a very hot day clouds gathered at S. E., very close and sultry. Squall came on a little before sunset; vivid lightning all round the heavens: previous to squall breaking heard an extraordinary noise in the heavens overhead, like the falling of heavy rain on distant jungle, or like the rushing of wind through a funnel: with the noise was heard an occasional growl, like distant thunder. When the rain fell, this noise had continued for some time, thunder very high in the heaven, but the lightning one blaze all round; whilst at dinner a smart shock from the South.” This latter shock is interesting, from being preceded by the peculiar noise in the air, and accompanied by an excessive display of electricity in the atmosphere. Both shocks, in common indeed with all experienced in Assam, were slight in intensity.

18. *Earthquake of the 30th October, 1843.*—This Earthquake occurred at Sandoway in Arracan, and is thus described under date 31st October 1843, by a correspondent of the “Englishman :”—“Yesterday morning, at a quarter to 8 o’clock, this place was visited with a severe concussion of an Earthquake, which continued about two minutes; the oscillations appeared to take a North and Southerly direction, no injury was done, and the general face of the surrounding country remains unaltered: the morning was exceedingly fine, and the Thermometer at 75°. I have written to friends at all stations North of this, to ascertain whether the shock was felt at those places, and have also got natives to write to their friends, in the hills and towards Bassein, to learn whether it was felt in these directions, and if it presented any uncommon phenomenon.”

At a subsequent ~~part~~, the same writer adds the following particulars :—“Having promised you the results of my enquiries connected with the Earthquake which was felt here on the 30th October last, and with the volcanic eruption which took place some time ago off that Island, near Cheduba, I have now the pleasure to forward you all the information I have been able to collect on the subject, premising, however, that being totally unacquainted with the science of geology, many minutiae have doubtless escaped my enquiry, which would have attracted the attention of a scientific man.

“Regarding the Earthquake, it appears to have proceeded from the South, extending itself along the line of coast as far North as the Town of Ramree, at which place it was but slightly felt; and still fainter at Kyook Phyoo, which is situated at the North of Ramree Island. The shock was very perceptible at Cheduba, scarcely at all so in the Yoomadong mountains, but very severe at ‘Gookhcomg,’ which is about ninety miles South of this, and on the sea shore. The Soogree (or head man) of that district, with whom I have fortunately had an interview, describes it as having so agitated the place, as to cause a great rustling in the trees, and loose stones to roll down the hills; but he states he has neither seen nor heard of its having been attended with any remarkable incident. It has in all probability been felt in Moulmein, and if you have not already had some information on the subject from thence, it would perhaps be a point worth ascertaining.*

* No notice of this, &c. &c.

“ With reference to the Volcano, which left a transient Island formation, it took place in July last, and continued in an igneous state for eight days. The water in the wells on Flat Island rose considerably, and no noise or agitation preceded the eruption, or was experienced during the period of its action. The native from whom I gained my information, describes it as having been a most magnificent sight, particularly at night; flaming forth with fierceness, as to cause the columns of smoke to ascend till lost in the heavens. The Island which is mentioned as having been thrown up out of the sea, and subsequently disappeared, could have been nothing more than an accumulation of ashes, cinders and lava, ultimately removed by the influence of the tide, and the severity of the South-West monsoon. The situation of it appears to have been a little South of Flat Island, in the intersection of two lines, one drawn through the two Volcanoes in Cheduba, and the other through the volcano near Kyook'Phyoo and Flat Island; this leads one to the supposition, that it might have some relation to the two former volcanoes. I have seen a number of geological specimens, which were subsequently brought from Flat Island, among which I could recognise quartz, limestone, iron pyrites, shale and scorïæ, besides some others of an igneous nature, the minerological composition of which I could not ascertain.”

19. *Earthquake of the 14th November, 1843.*—The following extract of a letter, under date the 25th November 1843, from Major Jenkins, gives an account of a shock on the 14th November, as felt in parts of Assam :—“ This is just to mention, that a smart shock of an Earthquake was felt at Gowhattee and through Kamroop on the morning of the 14th instant, about from 1 to 3 o'clock; it was so severe as to awaken all the gentlemen out of their beds.

“ I did not feel it in my boat, nor did any of the gentlemen at Sib-sagur (Rungpoore) feel it. Mr. Masters now with me, among others, neither felt it, nor heard that the natives had perceived it.”

As far as Assam is concerned, it has been partial it would seem, as no intelligence of this shock having been experienced elsewhere than above stated having reached me, Major Jenkins's reference as to its local character is probably correct.

20. *Earthquake of the 18th December, 1843.*—This shock was also confined, so far as collected intelligence would shew, to lower Assam. The following extract of a letter from Captain Butler to Major Jenkins,

kindly forwarded to me by the latter, gives details :—" Gowhattee, 19th December 1843. Yesterday whilst sitting in Court, at twenty minutes past 4 p. m. we felt a very severe Earthquake, with a rumbling noise from South to North: the motion was very great, and had it continued a moment longer, I was prepared to rush out of the building. These Earthquakes appear to be becoming more violent than I ever recollect before in Assam, from what cause I cannot imagine; but a little more would bring down our Courts and large Bungalows." Major Jenkins mentions, that this shock was not felt in Upper Assam, nor is there any reason to believe it was felt towards Sylhet and Bengal; so that, if the Earthquakes are really becoming more severe, they would appear still to preserve their strictly local and limited character.

This concludes the Register for 1843, shewing a total of twenty shocks during the year, of varying intensity and character. I refrain at present from attending any detailed arrangement of the phenomena they present, as this can best be done when a large number of observations come under discussion. I now, in closing this paper, will merely annex a Summary of its contents in a Tabular Form.

Tabular Summary of Indian and Asiatic Earthquakes for the year 1843.

Numb.	Date.	Locality affected.	Remarks.
1	January 2d,	Manilla,	Slight.
2	" 4th,	Singapore,	Slight. [Singapore, &c.
3	" 6th,	Pulo Nias,	Very severe, extended to Penang,
4	" 8th,	Penang,	Slight.
5	Feb. 8th, ..	Ahmedabad,	Slight. [&c.
6	April 1st, ..	The Deccan,	Severe, felt at Sholapore, Belgaum,
7	" 6th, ..	Assam,	Smart.
8	" 11th, ..	Himalayas,	Smart, extended to the Plains.
9	May 12th, ..	Penang,	Smart.
10	June 3d, ..	Titalayah,	Slight.
11	" 15th, ..	Assam,	Smart.
12	" 16th, ..	Ditto,	Severe.
13	" 17th, ..	Ditto,	Smart.
14	" 17th, ..	Ceylon,	Smart.
15	Aug. 10th, ..	Darjeeling,	Slight, extended to Patna, &c.
16	Sept. 3d, ..	Assam,	Smart.
17	" 3d, ..	Ditto,	Ditto.
18	Oct. 30th, ..	Arracan,	Smart.
19	Nov. 14th, ..	Assam,	Slight.
20	Dec. 18th, ..	Ditto,	Smart.

JOURNAL
OF THE
ASIATIC SOCIETY.



*On the Buddhist Emblem of Architecture. By Capt. T. LATTEN, B. N. I.,
Assistant Commissioner, Arracan. With two plates.*

MY DEAR SIR,—I do myself the pleasure of forwarding, for the inspection of the Asiatic Society of Calcutta, the accompanying portions of a Buddhist Sculpture, (fig 1.) brought by me from the old town of Arracan, and as they present some peculiarities, I have no doubt that the following remarks will be acceptable.

They formed the upper part of a figure, one of which was sculptured on each side of the entrance into the court of a sort of small cave temple, and they are interesting on account of the Rose which surmounts the figure, and which is identical with the Rosette of Architecture. It was the only one of such emblems, to which I could not at once apply a *Buddhistical* interpretation, and the discovery of this one in a position that could not admit of a doubt of its meaning, and that meaning exactly in conformity with what I expected it would have been, was a source of much pleasure to me.

I will then now proceed to give you a *Buddhistical* view of the emblems of masonry, and I do so with some hesitation at the risk of being accused of riding my hobby, "jusqu' à l'outrance," as I am aware that my remarks are of a speculative character; still, as they are the only attempt that has been made, as far as I am aware, at explaining these architectural emblems on philosophical grounds, they may be both interesting, and the means of drawing the attention of others to similar subjects.

In the following pages I shall confine myself to the explication of those emblematic ornaments which occur in the Doric order, that "first-born of Architecture," because, being the most antient, its emblems are of the most pure and simple type, and have none of those confused and meretricious additions which we find abounding in the later orders, as the Corinthian and Composite.

I have already had occasion* to remark, that I considered Boodhism to have been a metaphysical system emanating from an Egyptian fountain; that it was introduced at a very early period into Hindustan; that it there became influenced by local circumstances, as also probably by fresh importations from the original source. Boodhism appears, thus, not only to have acquired various local types, but likewise, after being so altered, to have diffused itself, as it were, from new centres of motion, and thus to have given rise by mutual interferences, to varied and mixed results. We find this illustrated in the history of modern Boodhism, (that of Gaudama). We read of its being imported, from a certain source, into regions where it was previously unknown; of its dying away from negligence, or persecution, in its early strongholds; of its again drawing fresh life from its young offshoots; and thus, finally, presenting in its original seat, a phase modified by the provincialisms, with which it had been imbued. This is the case with the Boodhism of Ceylon; which was imported into trans-Gangetic India, became afterwards nearly extinct, and was revived by fresh supplies from Siam, &c. I, in the same paper, endeavoured to trace the mental process by which Boodhism progressed into heathenism; viewing it in fact, as the incipient stage of what is usually styled Idolatry; leading naturally into the degrading cult of Fetichism. I also pointed out how that Boodhism, in its early, and comparatively pure state, (influenced by that craving after substantiality inherent in human nature) endeavoured to realise its ideas, first by numbers, next by symbols consisting of numerical combinations, and finally, by employing living animals, and their representations as types. Considering Boodhism then as I did, as emanating from an Egyptian source, I naturally was led into comparing it with those systems which were acknowledged to have had such an origin, and especially with those which delighted in expressing

* Vide "Note on Boodhism," published in McClollan's Journal.

themselves by symbols, and representations. We know that those antient mysteries, a lineal descendant of which has come down to the present day, obeyed this description; they were Egyptian in origin, and were symbolic, and emblematic in predilection. It was in these mysteries in which was locked up the craft of Architecture; and it is on the results of that science that we are likely to find impressed the appearances we have alluded to.

The emblematic ornaments then, to which I would draw your attention, are the Triglyph, the Dentals, the Bull's or Ox's skull, and the Patera or Rosette. And before entering upon them I must premise that, if we were to view a building with the eyes of that craft, to whom through a long line of ages was consecrated their structure, and their charge, the ornamental parts would aptly be emblematic of "perfection." Or to use the phraseology of the spectators, having reared up a mental structure complete in all its parts, and comely in all its proportions, we proceed to add to it those ornaments, and to enrich it with those gifts, which, though not necessary to its usefulness, add to its grace and beauty. It would be needless for me to go through the pages of antient authors to illustrate this point, but we find it abundantly instanced in the writings of Paul, who deeply conversant with those mysteries himself, not only continually endeavoured to point out their hidden purport, but likewise was anxious to connect them with the high spiritualism of the new faith he had embraced. Thus he declares, that Jesus Christ is the "chief corner-stone," (Ephes. ii. 20,) "the true foundation," (1 Corinth. iii. 11.) He then tells his hearers to build upon this foundation, and he reminds them that "every man's work shall be made manifest; (*φανερόν γενήσεται*, "shall become publicly known,") for the day shall declare it (*δηλώσει*, shall expose it); that it must stand the test of fire, before the workman (*μισθὸν λήψεται*,) shall take his wages; and he curiously adds, that if however "any man's work shall be burned," (*i. e.* not be able to stand the test of fire) *ζημιωθήσεται* "he shall be fined,"* but he himself shall be saved, yet so as by fire." (*Ib.* v. 13. et seq.) All these are technical

* This is the most correct and literal rendering of this word, for it is the 3rd person singular ("he") 1st future indicative ("shall") passive voice "be") of the verb of *ημια*, which in this voice can only make sense, by having accorded to it its general acceptation of "mulct, punishment by fine."

allusions that must speak to many of my readers; and further to identify them, he actually employs a still more technical phraseology, and commences (v. 10.) by alluding to himself ὡς σοφὸς ἀρχιτέκτων "as a wise master mason," rendered in the established version "as a wise master builder." On another occasion he refers to that Great Architect of the Universe, whom he declares τὰ πάντα κατασκεύασας, hath "built all things," (Heb. iii. 4.) And again he emphatically declares, that it was by revelation that was made known to him the true purport of these mysteries (κατὰ αποκάλυψιν ἐγνώρεσέ μοι το μυστήριον. Ephes. iii. 3.) "the revelation of a mystery which had been kept in silence (σεσιγημένου) since the world began." (Rom. xvi. 25.) He asserts, that he was peculiarly sent to enlighten *all men* upon what this "fellowship of the mystery" really is, (φωτίσαι πάντας τις ἡ κοινωνία τοῦ μυστηρίου. Ephes. iii. 9.) And a little further he gives a climax to his spiritualising interpretation of this "fellowship of the craft" by picturing its consequent to be a comely structure harmoniously joined together, and cemented by the secretion of every joint (διὰ πάσης ἀφῆς της ἐπιχορηγίας) in the proportionate and individual action of each separate part, which thus progresses εἰς οἰκοδομὴν ἑαυτοῦ ἐν ἀγάπῃ to the building, (literally, house building) of itself in Love. (Ephes. iv. 16.) Thus closing with the watch-word of those mysteries to which he referred.*

I shall have again occasion to revert to this portion of my subject, and place beyond a doubt not only the intimate acquaintance that Paul had with these mysteries, but likewise shew that his writings prove

* What I have advanced here is simply thus : that not only was Paul initiated into those antient and secret mysteries, which were associations of brotherhood; but that he wanted to point out that their inculcations of fellowship and love, and of the performance of high morality were in themselves insufficient; that they required the vivifying Grace of that Being, whose faith he had adopted, and that this mental edifice required to be built up, not upon one's own foundation, but upon the foundation, and in the spirit of Him, whose Apostle he was. Thus he declares, that the true view of these mysteries had not till then been pointed out. Indeed the whole circumstance is one of many instances exemplifying Paul's transcendent qualities as a Pleader; wherever he may be, whoever he may be addressing, he invariably seizes upon some existing peculiarity, some belief identified with local predilections, on which to fix the consecutive glories of the magnificent cause he was advocating; and thus disarming suspicion, and unopposed by prejudices in the outset, he proceeds in one train of powerful induction, to enunciate the startling truths of which he was possessed.







that he truly was, as he declares himself to have been, ἀρχιτέκτων "a master mason;" for that he alludes, as far as he was enabled by his obligations to do, to certain appearances in that grade, which can be appreciated only by the initiated.

Having then thus premised that the ornamental parts of a building were aptly emblematic of perfection, it is only in connection with the idea of objects of perfection, that we must endeavour to search for a resolution of their meaning.








The Triglyph, ("a." fig. 2.)

The earliest edifices having been of wood, and the more antient type of stone buildings conforming in a great measure in their simplicity to what we might consider the early wooden buildings must have been, most practical masons endeavour to account for the origin of the Triglyph, by viewing it, as a representation in stone, of three props, which were stuck up between the architrave, and that part of the cornice in which the ends of the beams that support the roof, project. And this view seems at first sight plausible, as they invariably occur immediately under the mutules, which last have very much the appearance of the ends of projecting beams. But if the construction of the Triglyph be examined, this will be at once shewn not to be the case; independent of which it is much more probable that the primitive builders put a solid oblong block, to support this most important part of the edifice, instead of leaving it to the strength of three slim sticks, or bits of planks. In fact, it was a solid block which, from the important functions it had to perform, viz. to support in the first instance the whole weight of the roof, and in the second to keep it clear of the architrave, was happily impressed with the most sacred of all emblems, in all ages, among all nations, the *Triglyph*.

This quadrangular block was the prototype of that hewn and "cubic stone," which plays so important a *role*, in modern masonry. It was, according to Duteil, emblematic of *legal*, as the unhewn stone was of *natural*, justice; and was consequently employed in early ages as the seat of judges, and is, he says, the ξέστος λίθος placed by Homer, in the third Odyssey, before the portals of Nestor. It is likewise an emblem found on Buddhist coins, and has by some been taken for an altar. It will be remarked by examining the Triglyph of Architecture (fig. 3,) that it is so constructed as to leave no dispute of its meaning;

two of the glyphs being complete, (*a a*) the third being split down the centre, and one-half being on each edge of the block of stone, (*b b*). The Triglyph, or combination of three scores, has been throughout all ages the symbol of the Deity, the Tri-une God; we find them variously combined; sometimes in the form of a star , sometimes in that of a  which is the early type of the sacred *Tau*,* so expressive a character among the antient Egyptians; and generally held to be symbolic of "eternal life." They may be found again thus  And in many other forms, such as  which is the simplified form of the Cabalistic Abraxas, (fig. 4,) typifying the sun, or thus  emblematising the most simple as it is the most powerful resolution of forces, and the one to which all others may be reduced. On the three Yods impressed on the Hebrew Abraxas, (fig. 5,) and the three wings of a hawk, symbolic of the idea "God," found on that of the Egyptian, (fig. 6.) I have already had occasion to remark, (Note on a Boodhist symbolic Coin, published in the Transactions of the Society,) that these three scores compose the word  *Allah*, the term for "God," among the Mohammedans, and which becomes the more marked in the Cufic characters,† composing that word. It is a very common, and abundant figure in Boodhist symbolism, and the interpretation given to it in the paper on the coin just referred to, was immediately acquiesced in by several learned natives and Boodhist priests, to whom it was shewn on my return to Arracan.

* Vide some remarks on this character by the Author, "Introduction to Grammar of the Language of Burmah," p. xxxix.

† In those characters  the final  is shewn to be a member of the word, and to be radical, the same as in its Hebrew analogue  *alahim*, in which last the *plurality* of the root is evident. Thus in the plural number it is the word used for "God," in many parts of the Bible; and throughout the first chapter of Genesis, especially verse 26.  "Then said the Alahim (God,) *we* will make, &c. &c." The discussion of the characters that compose the Arabic word  is foreign to my present purpose, but I will merely say that I consider the initial  *alif*, in no wise belonging to the word itself, but being a sort of formative prefix, article, or epithetic; that the second character *now* pronounced, and considered a  *lam*, was originally, perhaps long before the existence of alphabetical characters, pronounced as an "*alif*;" and that the *expressive* part of the word consisted, like the Hebrew term, of the *sounds* of simply *Alif*, *Lam*, and *He*. Some of the modern compounds of the word place the view I have given, if not beyond a doubt, at least far within the realms of probability.

I have proposed to myself in this paper to confine myself to a *Boodhistical* view of these emblems ; and such view enables us happily to explain the reason why, whilst two of the glyphs are entire, the third should be complete, and yet not whole. According to Boodhism, there first existed *Boodha*, "Supreme Wisdom." From this emanated *Dhamma*, "the Law." And from *Dhamma*, come those who fulfil it, *Thenggha*, "the Congregation of the Saints." These are necessary sequences the one of the other ; no second among them being able to be, without that which precedes. *Boodha* has existed, and therefore its emblematic glyph is represented entire, and complete ; *Dhamma* has existed, and its emblematic glyph is likewise entire, and complete ; but *Thenggha* has not yet perfected its existence, and therefore its glyph is represented as existing, but not perfect and entire.

The Dentals, (fig. 2. "b.")






Immediately under the Triglyph, and on the face of the architrave, we find a number of triangular drops, or figures called from their shape, Dentals, or Dentils. In some cases they are *six* in number, but in others, the more correct and antient, they are *five*. I have remarked, in the case of modern Architecture where there has been a vitiated triglyph composed of three *whole* triglyphs, (fig. 7.) that the Dentals are six in number ; whereas when they occur in connection with the true triglyph, they are five. The number five in the mind of a Boodhist typifies the five commandments, in fact the law ;* but it is singular, that if such a one, speaking the Pali dialect, were to draw the attention of another person to these Dentals, he would employ the term *pěgnytsěng*, (pronounced something like *peentseng*) to identify them ; and this is the technical term employed to express the five commandments.† This

* Conf. Grammar of Burmese Language, p. 90.

† As it bears upon the typical value of the number "five,"* I have inserted the following portion of a note published in the work already alluded to "the name of the number five" (*pegnytsa*.) in the Pali language is composed of *pegnya*, which implies "wisdom, understanding;" the final *tsa*, is an expletive in very common use in the Pali language. It has been shewn (p. 90) that, in the eye of the modern Boodhist, the number 5 typifies the five commandments, in fact the law. It will be self-evident to the intelligent mind, how naturally that the fulfilment of the law was identified with "wisdom," and "understanding." Examples might be multiplied to show that it was so in the minds of the early races of mankind: "Behold, the fear of the Lord, that is wisdom; and to depart from evil, that is understanding." (Job. xxviii. 28.) "Give me understanding, and I shall keep thy law ; yea, I shall observe it with my

word is composed of the roots *pěgnytsă*, or *peentsă*, "five," and *ănga*, "parts." The term *ănga*, however, has a somewhat peculiar power, it not only means the "part" of a "whole," or the "member" of a "body;" but it implies that such "part" or "member," as far as regards its own individuality, is a complete object in itself. Thus, (Judson's *Burm. Dict. in voce.*) the cavalry, infantry, elephants, and chariots of an army, are styled *ăngas*, of that army. And it is thus that these five distinct Dentals having each an individual completeness in itself; but going towards the composition of a whole, would be styled *pěgnytsěng*, "the five *ăngas*." I have already observed that, speaking Boodhistically, from "Supreme Wisdom" "(*Boodha*) proceeded the Law," (*Dhamma*). Or to speak in other words, it (*Dhamma*) may be said to be the mode in which *Boodha* ("Wisdom") manifests itself to the *ġlěnggha*, or "Congregation." Thus, as far as regards that "Congregation," *Dhamma* is "Wisdom." Or to speak so as to be understood by Christians, the Deity can only be appreciated by his followers in what he reveals of himself; now the revelations of himself by the Deity, to be consistent with the awful grandeur of his character must necessarily be commandments, the dictations of His Will. For it would be utterly inconsistent with a proper appreciation of that Being, to hold that he converses, in the usual acceptance of that term, with His creatures. This idea is carried out in all Eastern dialects; a term such as the Persian *فرمودن* *fir moodun*, which, when applied to the act of an equal, would imply "to order;" when referring to that of a superior, simply conveys "to speak, say." I have been particular in explaining, how that in one point of view the Deity (*Boodha*, "Wisdom") and His Law (*Dhamma*) are identical, and have mentioned that this *Dhamma* is typified by the number "five;" for thus is explained how the Pali name of that number (*pěgnytsă*) is deducible from *pěgnyă*, "wisdom;" and it may guide us to the understanding of Hôr Apollo, where he says (Lib. I. c. 13.) that among the

whole heart." (Ps. cxix. 34.) The same connection between "knowledge, wisdom, and understanding," and the precepts of the law, exist in the Burmese language.

The pure Burman term for these five commandments is : *thiedeng*, which implies "news, information;" and is composed of the root  *thie*, "to know, perceive, understand," and  *teng*, (with, or without the points) "to contain, hold, &c." Introduction to Grammar of Burmese Language, p. xi.

ancient Egyptians a star represented "the Mundane God, likewise fate, likewise destiny," likewise the number "five." This Star was five-rayed, and is used in those mysteries, which have come down to us to represent the same idea that it did among that people; and, from what has been said, it is probable that it did not exactly represent the idea of "God," but of that revelation of Himself alone appreciable by men, viz. His Law. The five commandments composing this Law are merely inculcations of those duties, the performance of which is absolutely necessary for the preservation of social order, and happiness; in fact, they are the five points of fellowship, viz. refraining from, 1st, *panatipata*, "destroying life;" 2dly, *ādiennadana*, "theft;" 3dly, *kamēthōōmiets-tshatsara*, "adultery;" 4thly, *mōōthawada*, "falsehood;" and 5thly, *thooramérāyāmādzdzhāpamadāhtana*, "intoxicating drinks." It will be remarked how truly all these may be styled points of fellowship, referring as they do solely to those duties necessary for the maintenance of order in society, and not, as in the Decalogue of the Hebrew, inculcating any of the obligations due to one's God. Another connection between the number "five," and a "god" in Boodhism, is shewn by the circumstance that Boodhism holds that there are "five Boodhs,"* who characterise the present world; four of whom have appeared, and the fifth who is yet to appear. We find a similar connection existing in reference to their sacred number, in *Brahminised* Boodhism as it obtains among the Nepalese, for they hold that the number of Boodhs is "seven;" (vide, Hodgson's Tracts on Boodhism,) that being a sacred number in Brahminism, and among the Semitic families of the globe, but enjoying no particular sacred value in true Boodhism.

Having thus discussed the Triglyph and Dentals, we will proceed to those ornaments which are generally placed on the metopes of the frieze. These generally are the head of a dead Bull, or Ox; or a Rose, or Rosette, generally styled a "Patera." I have already remarked, that it is only in connection with the idea of perfectibility that we must endeavour to realize the symbolism of these emblematic ornaments. We have already seen how that *Boodhistically* viewed, the Triglyph emblematises the union of *Boodha*, *Dhamma*, *Thēnggha*; forming when

* A *Boodh*, comes nearest among them to the definition of a God, being the sole true object of worship.

united the *Thārāṇāgōḍṇ*, "the Supreme and decisive attributes." It is thus that in the Burmese (a Boodhistical) language, when the term *thōḍṇ*, "three," is applied in an attributive signification to a person, in fact if it be said, "so, and so threes," it implies that he performs those moral duties and obligations, that make him a member of the *Thēnggha*, that "Congregation" who fulfil the "Law," thus making himself one of the THREE. I have also endeavoured to shew how that viewed in a similar light, the Dentals would admirably represent *Dhamma*. And now I proceed to point out how that the Ox's, or Bull's skull, and the Rose, in the same way, represent the numbers of the *Thēnggha*.

We will recapitulate that the earliest symbols by which Boodhism endeavoured to represent her ideas were numbers. This we have shewn by the attributive signification of certain numbers in Boodhistical languages, which only can be accounted for by their allusions to certain tenets of the Boodhist faith. For instance, if it was held that such and such, or so many components, or qualities, existed in the various individualities of the physical and metaphysical world, then the name of that number necessarily conveyed the idea of, and typified them. The next step was materialising into tangibility these numerical types; this was done by the corresponding number of marks or scores. This class of symbols appears to have been more used for the illustration of those higher objects and ideas, which did not pertain to mankind, and his converse here below. Soon, however, certain objects of the animal creation were chosen, on account of certain peculiarities in their temper, conformation, or mode of existence, to represent cognate ideas, especially in connection with the correspondent qualities among mankind. Thus, there are three grades in the *Thēnggha*. 1st, the *Boodhithatwa*; 2ndly, the *Pratyeka Boodha*; 3rdly, the *Thrawaka*. The first was typified by an *Ox*, the second by a *Deer*, and the third by a *Sheep*. (Conf. Travels of FOUR KONG KI, by A. Remusat, p. 10.) The first then is the one to which we must look for the interpretation of this Ox's or Bull's skull,* which we find forming an ornament of these friezes, (fig. 2. "c.") I am aware, that it has been generally attempted by practical masons to explain the presence of this skull, by holding it to

*This mode of representation by synecdoche is very abundant in hieroglyphic, and emblematic sculptury; the head being employed as an abbreviation of the whole animal: thus we say, so many "head of cattle."

refer to the sacrifice of bulls and oxen;* but then in that case, it would have been the representation of the head of a live animal. Dûteil considers, that the circumstance of its being the head of a dead animal, (referring to the instance of the representation being that of dead Ram's head,) alludes to the destruction of the world by fire, when by the precession of the equinoxes the sun shall again lead the opening year in the constellation of Aries. (Dict. des Hierog.) Dupuis likewise (Origine de tous les Cultes,) declares the worship of the Bull originated at the period when that luminary opened the year in Taurus. Indeed he considers that all the various religious myths referred to the sun. That Hercules in his twelve labours was the sun in his twelve zodiacal signs; that Jason in search of the fleece of Colchis, was a mythological allusion to the god of day entering Aries; he supports the accusation, brought by its early opponents, that Christianity was a species of Mithraism, and declares that the birth of Christ was nothing but a spiritualism of the sun in Virgo. Without disputing these positions, we have still to account how this animal was held in such high veneration, as to have had accorded to it, with others, this stellar apotheosis, necessary to have enabled their version of the myth to have had an origin. We see how Boodhism explains this by having employed them as types, and the animal under discussion, as the representative of the highest moral perfection that humanity is capable of; and I shall proceed to show how perfectly in keeping it was that the crowning point of this perfection should be held to be "DEATH."

It is the *Boodhihatwa* "the perfecter of wisdom," who alone is able directly to attain *Niebhan*, "the not to be," without having to undergo any more transmigrations. It is for this state of annihilation that every Boodhist pines; and it can be attained but by death alone. In all those mysteries which were held in such high veneration by the Antients, and the types of which have descended in a chain of unbroken succession even to our own days, the attainment of the crowning point of the craft was typical of Death. It was alone by passing through the vale of its shadow that perfect light could be obtained. Apuleius, in the eleventh book of his *Metamorphosis*, or *Fable of the Golden Ass*,

* It is singular to remark how rapidly this mistaken idea was adopted by the Greeks; for we find very often the friezes of the Corinthian order occupied by a long sacrificial procession.

describes minutely this completion of initiation : the night-like darkness ; the approach to the confines of Death ; and then in the very midst of this darkness, the light revealed to him. In some of the various versions of these mysteries, it is said that the candidate was shrouded in the shudder-cloth of Death, was placed in that narrow home to which we all must go, was raised again, and went forth the new-born, and perfect craftsman. In others, it was represented by the candidate passing through an oval, symbolising that as he entered into this scene of woe, so must he go forth again. Thus was it that we find Death styled in antient writ "the portal of life." It was thus that clefts in trees, and openings in rocks were ever held in veneration among the vulgar of all nations ; passing one's body through them is a regenerating process gone through by Hindoo devotees in the present time, and even in our own land the practice "it is said exists in some parts of the country of passing children through such openings to cure them of the rickets. A similar ceremony is the bathing in those *khonds*, (typical of the opening of the womb,) or still pools, where a river enlarges into a circle, and which is held in India as a regenerating process.

We find the Apostle Paul referring in a most marked manner to certain appearances in the celebration of this grade, and he too yearns for the time when he shall know perfectly. I allude to the often-quoted chapter the 13th of 1st Corinthians. The word there translated "charity,"* is in the original ἀγάπη "love," and implies that bond of brotherhood which ever was the watchword of those mysteries which he speaks of in the 2nd verse of the chapter. The whole bent of the chapter is singly this ; it is one of the many allusions, he makes to these mysteries, and he says, that although he may be ever so well read in them, and be able to expound them ever so clearly, yet if he is not imbued with that "love," which is the foundation-stone of them all, it profiteth him nothing. And he goes on to say, that in this life we can but know in part, and we prophesy (announce) in part ; but that when the end shall arrive, then that

* The word "charity," in the confined import which we give to it, is little else than ἐλεημοσύνη "alms-giving ;" but it is derived from the Greek χάρις-ιτος, which is a most expressive root, implying that union of "mercy, thankfulness, and love," which goes to the composition of that exquisite quality "grace ;" a quality which, whilst it is an attribute characteristic of a God, is still to be discerned in the tracery of a leaf.

which is in part shall be thoroughly rested from labour. I quote the original with the accepted rendering, and will detail why I give the metaphrastic version above. ἐκ μερους γὰρ γενώσκομεν, καὶ ἐκ μέρους προφιδεύομεν· ὅταν δὲ ἔλθῃ τὸ τέλειον, τότε τὸ ἐκ μερους κατερ-
 γηθήσεται. "For we know in part, and we prophesy in part. But when that which is perfect is come, then that which is in part shall be done away." The word here translated "prophesy," is προφιδεύω, and implies correctly, "to announce, explain," as the oracles of a God. The word rendered "perfect," is τὸ τέλειον, the neuter of the adjective of τέλος, "the end." This connection between the ideas of "end" and "perfection," exists in all languages. The word rendered "shall be done away," is καταργηθήσεται, which literally bears the interpretation I have given it; κατα in composition implying, "completeness, thoroughness;" and ἀρλῖω being derived from a privative, and ἔργον "work." He proceeds in his allusion, and says, "For now we see through a *glass* darkly; but then face to face: now I know in part; but then shall I know even as also I am known." It is easy to perceive to what he refers, when he says that it "was seen through a glass; but *then* face to face;" the "then" alluding to the time when that which was in part should be done away, when that which is perfect, (the end) is come; the seeing it "face to face," alludes to when he shall stand in the presence of the Great Revealer of all secrets, who will then expound to him all the mysteries of His Will. What is still more singular is, that the word rendered "darkly," is in the original ἐναινίγματι, "in covert allusion," or "emblematically expressed." We may gather then the following particulars from this description: 1st, of all that he refers to something typifying the approach of death, the coming of the τὸ τέλειον; 2ndly, that during that, something typifying Death, he saw something through a glass; 3rdly, that this last was expressed enigmatically, or by an emblem; and 4thly, that it in its enigma referred to the Revealer of all mysteries, whom he was to stand "face to face," with, when the time came that he should know, even as also he was known. We have seen how that among the antient Egyptians, the first mystagogues of Antiquity, this Being was emblematically represented by a Star; and we have said that the Egyptian Star was invariably five-rayed.

I have thus, I trust, sufficiently explained why this Bull's or Ox's skull, typical in Boodhism of the highest grade, the *Boodhithatwa*, is represented as pertaining to DEATH; that END being itself most essentially necessary to the fulfilment of perfection.

Rose, or Rosette.

We now come to the last of these emblems, which I propose to discuss; viz. the Rose-shaped Ornament often found occupying, like the preceding, the metopes of friezes. This ornament is, I believe, generally styled a "Patera," by practical architects, and is held to be a representation of the dish which was employed in the presentation of offerings among the Antients; but it must be a singular sort of a dish to have the petals and stamens of a Rose. It is met with under variously altered forms, sometimes presenting a type so vitiated, as to have lost almost all its floral characteristics; but it is much more similar to a Rose, than is the so-called Rose Ornament of the Corinthian Abacus, which we shall have occasion to discuss more fully. In the case of modern buildings, where, on account of their public character, attention has been paid to their details, I have observed that this ornament has preserved, if I may use the expression, its botany; whereas in private, or carelessly executed edifices, it is difficult at times to recognise it. It is found alternating with a sort of lily-formed flower at the base of the Doric capital immediately above the Astragal.

Considering it then, as I did from the very first, as a Rose; it was as I have remarked in the commencement of this paper, the only one of these ornaments to which I could not immediately apply a Boodhistical interpretation. Still, as Boodhism was so fond of recording her ideas in symbols, and as she was by no means restricted in her choice to the animal kingdom, and as this emblem, from its occupying the position of others importing "supremacy and perfection," must necessarily have had a kindred power; it appeared to me in fullest keeping, that the Rose should be there, as the most appropriate deputy from the floral regions of Creation, the fittest representative "after its kind" of such high qualities. It was therefore with no small delight that I found this regal flower occupying a place in Boodhist sculptury; which left no ambiguity to its meaning; and in a position identical with that in which it is often found in modern Architecture, viz. on each side, and

towards the upper angle of a porch, or gateway. This signification, then, which I have thus accorded to the Rose, of typifying "supremacy and perfection, chiefdom and eminence," is one that must find a confirmation in every intelligent mind. There is a curious passage in the second book of the "Erotics" of Achilles Tatius, describing the loves of Clitophon and Leucippe, which happily supports my views—
 εἰ τοῖς ἀνθεσιν ἤθελεν ὁ Ζεὺς ἐπιθεῖναι βασιλέα, τὸ ῥόδον ἀν-
 τῶν ἀνθέων ἐβασίλευε. γῆς ἐστὶ κόσμος, φυτῶν ἀγλαΐσμα, ὀφθαλ-
 μὸς ἀνθέων, λειμῶνος ἐρύθημα, κάλλος ἀστράπτων. ἔρωτος
 πνέει, Ἀφροδίτην προξενεῖ, εὐειδέσι φύλλοις κομᾷ, ἐνκινήτοις
 πετάλοις τρυφᾷ. τὸ πέταλον τῷ ζεφύρῳ γελᾷ. "If Jove were
 desirous of placing a lord over the parterre, surely the Rose would king
 it among flowers. It is the ornament of the earth, the beauty of
 plants, the beloved (literally, the eye) of flowers, the blush of the mea-
 dow, dazzling in its loveliness. It breathes Love, it invites Venus, it is
 tressed in beautiful leaves; it luxuriates midst the trembling foliage,
 and its petals laugh in the zephyr."

I have already remarked, that this Rose (fig. 1. "a.") (which it will be particularly noticed is meant for a wild or dog Rose) was found in a position that left no doubt of its being typical of supremacy; for it is placed (characteristically) over the head of a figure holding the umbrella, an insignia of royalty and supremacy, among all nations under the sun, (or more correctly perhaps in proportion as they were under sun) and crowned likewise with the tiara of chiefdom, the prototype of that which we find adorning the head of images of Siva, and of which a representative has descended to the present day, and is used in theatrical performances in Burmah and Arracan, as the head covering of kings and princes. Thus the whole figure may be read, 1st, from the insignia in its possession to have been a royal personage; 2ndly, to have been a *Boodhithatwa*, from the Rose typical of that grade being placed characteristically over its head. It is thus I consider it to be meant for a representation of Gaudama when he was on this earth, but previous to his being imbued with the Boodhic spell. This mode of placing an object over a figure to characterise it, is found abundantly in antient Sculptury. Thus we see the five-rayed

Star of Destiny, of which we have spoken so often, placed over the head of a figure, (fig. 8.) representing that Deity. The Rosette likewise forms an expressive ornament of the most important portion of the clothing, in fact of the badge of the modern mysteries.

A circumstance to be noticed in this figure is, that the ears are represented with the lobes pierced, and filled with small cylinders, by which the bottom of the ear is brought nearly as low as the shoulder. This is a peculiarity that exists in all Boodhist figures throughout India, and is a fashion that still prevails in India beyond the Ganges, and in those mountainous ranges where Braminism has never obtained. It is most probable that this custom was adopted from the traditionary belief, that the ears of Gaudama were so formed ; for we find it recorded of that god in Boodhist scriptures, that his stature was eighteen cubits ; and that the lobes of his ears rested upon his shoulders. This mode therefore of piercing, and loading to distention, the lobes of the ears, appears to have been adopted in remembrance of that divinity, and to have deserted the plains of Hindostan, and to have taken refuge in farther lands, and inaccessible recesses together with that worship of which it was one of the accompaniments.

Before bringing my communication to a close, I must refer to one other architectural ornament, a portion of which is found as a very abundant symbol on Boodhist coins ; I allude to the so-called Rose Ornament on the Corinthian Abacus, (fig. 9). There, however, can be no mistaking the flower to be a representation of the Helianthus, or sun-flower, which appears in this instance to have been employed to symbolise the Sun ; for from it proceeds a vivifying ray which terminates in a triple head.* This flame-shaped symbol, but without the triple head, is found on Boodhist coins, (fig. 10). No definite meaning has been given to it. Marsden declares it not to be the representation of a "flame," but of the conch sacred to Vishnu ; but Boodhism holds nothing of that god. Its character however is sufficiently determined, from the circumstance of its being found in identically the same form

* It is singular that this might almost express the amount of the knowledge, which moderns have arrived at of the components of the Solar ray being three ; the illuminating ray, the heating ray, and the chemical ray. It is not, I believe, yet satisfactorily settled whether there is not a magnetic ray. The other three are, however, acknowledged.

on the hieroglyphic sculptures of Egypt; sometimes by itself, sometimes rising from a sort of lamp, or cresset, (fig. 11). Champollion mistook it for a "tear" (PS 𐀓𐀓 𐀓), and therefore consigned to it, in his phonetic system, the power of an "R."

There is another symbol of frequent occurrence on Buddhist coins, especially on the one which you did me the favour of submitting to my inspection, and of which a description and explanation has appeared in the Journal of the Society. I give a representation of that side of the coin on which that symbol occurs, (fig. 12). In the paper alluded to, I declared that to a person acquainted with Buddhist cosmology, there could not be the slightest doubt, but that the whole of that side of the coin was intended as a symbolic representation of former universes in general, and of this universe in particular. And I moreover declared, that although I could not give any definite interpretation to the symbol occupying the centre, shewn detached at fig. 13; yet that from its relative position, and granting that my interpretation of the rest was correct, there was no doubt in my own mind that it was meant to represent this world in particular. I am glad to be able to say, that the whole of my views in reference to that coin, have since met with the valuable acquiescence of a friend, (Captain Phayre, Assistant Commissioner of Arracan,) who is not only deeply read in Buddhist literature, but has likewise an extensive collection of these coins. It is singular, however, that the following simple interpretation of that symbol, should not have occurred to me at the moment. We know that among the cabalists, as well as among others whose systems originated in the same source, the triangle with its apex upwards typified "fire," as did that with its apex downwards, "water." In the antient system of ideographic representation, when an object was represented repeated more than once, it signified "plurality, reiteration," in reference to that object. Now the two sets composing this figure are so represented, with their points meeting in a circle, (the universe), having a point within it (this globe); thus symbolising the reiterated effects of fire and water upon this mundane universe; which agrees exactly with Buddhist cosmology; for according to it this world has continually been alternately destroyed by fire and water; whence its Pali name *lāngā*, from *lā*, "reiteration, to be again and again."

Yours faithfully and truly,

THOS. LATTER.

P. S.—Since writing the above—on shewing my explication of the side of the coin above referred to, and especially of the central emblem, to an intelligent Boodhist priest, he was much delighted with, and acquiesced in, it. On being asked what he had hitherto considered the central emblem to have referred to, he replied ; “ to the *Rajpaleng*, or throne, on which Gaudama was impregnated with the Boodhic spell.” On being pressed for his reasons, he said, “ because it bore a resemblance to that species of foot-stool, called a drum *Morah* !” It is thus, that a somewhat similar shaped figure has been so employed in the pictorial representations of the life of Gaudama. With reference to the Rose-shaped Ornament discussed, I may be accused of a botanical inaccuracy, as the number of petals in the species *Rosa arvensis*, and *Rosa canina*, are “ five ;” whereas that of those in the representation on the sculpture are “ eight ;” but to this I attach but little importance : 1st, because the whole appertains to a rude, and inaccurate age ; and 2ndly, because it is peculiarly the genius of the Burmese language to style, and consider as a Rose, any rosi-form flower. With reference to the Dentals : they appertain, I believe, principally to the Ionic order, and are of rarer occurrence in the Doric. In the secluded locality from which I write, I have no means, in order to determine their proper number, of consulting any standard works on the subject ; but in the case of modern buildings of a public character, I do not remember to have met with any other number than “ five.” I may as well mention, that the present is not the only instance in which the Rose forms an ornament in Boodhist architecture ; they were found in abundance in various other Boodhist cave temples, which I visited in old Arracan Town. I was likewise informed by a friend, who had visited most of the cave temples of Western India, that the Rose is found alternating with a horse-shoe device, and with a tiger’s head ; and others, as ornaments on the friezes of those reliques.

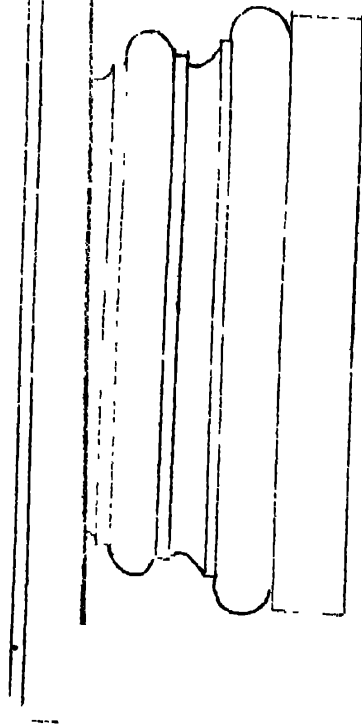


fig 10

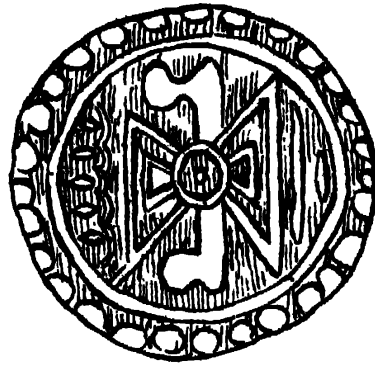


fig 12



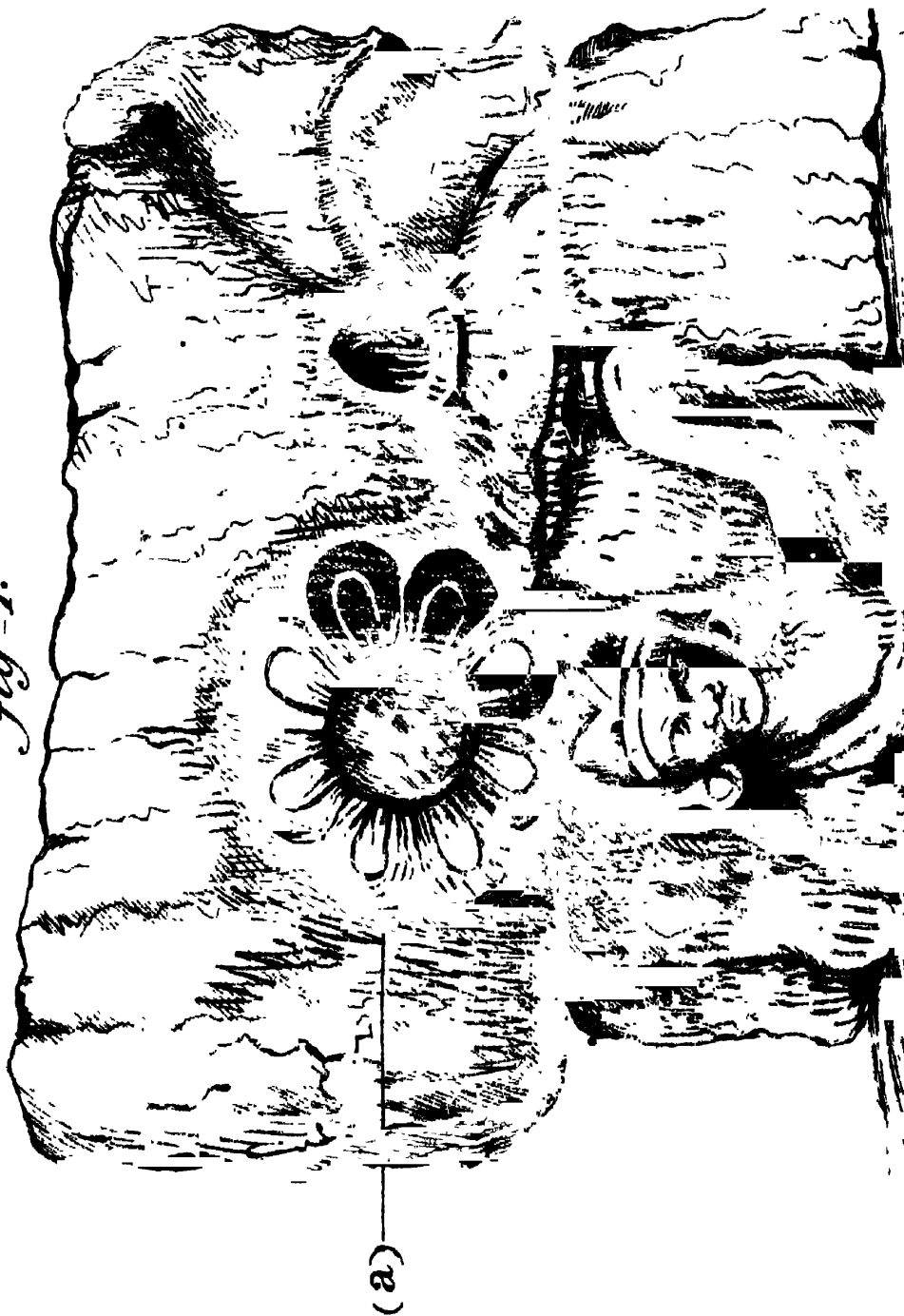
fig 11



fig 13

A

fig-1.



Notes, chiefly Geological, across the Peninsula from Mangalore, in Lat. N. 12° 49', by the Bisly Pass to Madras, in Lat. N. 13° 4'. By CAPTAIN NEWBOLD, F. R. S., M. N. I., Assistant Commissioner, Kurnool.

Mangalore, the civil and military head-quarters of South Canara, and a seaport of considerable traffic, stands on the Malabar, or Western coast of India, in Lat. 12° 49' N., Long. 75° 0' E.

It is situated on a sort of peninsula or tongue of land between two rivers, which unite in its front in an extensive backwater, or lagoon, almost shut out from the sea by a long narrow bank of sand. There was formerly a deep opening on this sandbank by which ships could enter the sheltered waters of the lagoon after being lightened of their cargo; but its depth has been considerably lessened by the formation of another opening. The Coast patamars and Arabian buggalas can still pass into the lagoon with safety.

The rivers are navigable for country boats nearly to the foot of the ghauts, and form advantageous channels of commercial communication with the interior. The principal exports are to Surat, Bombay, the ports on the Malabar Coast and Arabia, and consist chiefly of rice, betel-nuts, pepper, cardamoms, cassia, sandal-wood, turmeric, and salt-fish. The chief imports are cloths from Bombay, Surat, Madras, Bellary, Bangalore, and Cuddapah.

The higher parts of the peninsula present a thick bed of laterite, intersected by small flat-bottomed vallies opening out towards the sea, and flanked by steep hills of laterite. The summits of these hills are usually flat, like those of trap or sandstone, with steeply sloping sides and occasionally precipitous cliffs. In structure the laterite is porous, and sometimes cavernous. Dr. Herklots, in his Account of Mahomedan Customs, describes the sacred shrines of Shaikh Fureed at Cuddry, about two miles from Mangalore, as being situated in a cave in a centre of a perpendicular rock composed of laterite which is said to lead all the way to Hydrabad, 450 miles! The extent, which cannot be very great, has not yet been ascertained.

Arcola, or Feringhipett. From Mangalore by Cuddry Devasthanum, and Koonoor to Arcola, about nine miles, the road lies over laterite, and lateritic gravel. About two miles on the east of Mangalore, on a

laterite hill in mid air was swinging (June 16th 1837) the decomposing body of the rebel, Bungar Rajah—the gibbet creaking in the wind. His predecessor had been hanged by Tippoo for *his loyalty to the English!* Arcola stands on the North bank of the Comardaire, or Southern Mangalore river, and is called Feringhipett, from the circumstance of its being the early residence of the Concan Catholic Christians under the protection of the Sekeri Rajahs, and who were latterly expelled by Tippoo when he destroyed the town. The remains of the old church stand on the hill, built in the usual massive Portuguese style. The tide is said to come up to this place.

Buntwal. Buntwal also lies on the N. bank of the S. Mangalore river. The country between this and Mangalore is hilly, composed of small hills and vallies watered by rivulets. Where rice cultivation does not prevail, the surface is covered with scattered brushwood and palm trees. The soil is red and lateritic. The hills are generally rounded, or run in the flat-topped, crescent-shaped curves, like those near Capergode. All that I had an opportunity of examining were of laterite; but hornblende rock containing a dark foliated mica, is seen in angular blocks in the bed of the river at Buntwal. The river here is apparently from 150 to 200 yards broad, and now (June 1837) unfordable. Native boats of considerable size ascend the river from Mangalore; Buntwal and Pani Mangalore being the principal entrepôt with the interior. The masses of rock in the river bed are considerable impediments.

In Buchanan's time (1801) Buntwal contained only 200 houses, but then it had suffered from the forays of the Coorg Rajah. It is now (1837) said to comprise 800 houses, inhabited chiefly by Moplay merchants, Concanis, and a few Jains. It is also capital of a taluk, with a population of about one lac, and a revenue of nearly two and a half lacs of rupees.

That curious sect the Jains, have a *busti* here. The charred rafters and roofless walls of many of the houses attest the ravages committed in the insurrection just quelled, (June 1837).

Uperangady. From Buntwal easterly, as the ghauts are approached, the surface of the country becomes more jungly, less cultivated, and less populous: the formation still laterite, covering granitic and hypogene rocks, which are occasionally seen in beds of rivulets and low

situations. The road still lies along the N. bank of Comardairi, or S. Mangalore river, which just below Uperangady bifurcates: the north stream descends the ghauts in the vicinity, and the south stream rolls down the steep of the lofty Subramani. The former is crossed to the village, now (June) unfordable.

Across this ford a dash was made on the insurgents by Colonel Green's force, the pagoda fired, and the principal idols defaced and broken; nothing remained but the tiled porticos and blackened walls. The natives were carefully collecting the fragments of their desecrated gods, and piling them up in the best order they could. The village is large and populous, and contains besides Brahminical temples, a mat'h of the *Jungums*, priests of the Lingayet sect, and a Jain *busti*.

Cuddab. From Uperangady to Neranky, and thence to Cuddab, the surface becomes more rugged and hilly, and the jungle, which is said to be infested by elephants and tigers, higher and thicker. The road leaving the northern branch approaches the southern, or Subramani branch of the river. One of its tributaries, the Dhillampari, is crossed by boat to Cuddab, a village containing many Concani Brahmins, with Goadahs, Tulavas, Bunters, Walliars and Jains, the last of whom have a *busti* here. I could scarcely find food or shelter, the shops and Traveller's bungalow having been burnt by the insurgents. The Bungar Rajah was, I believe, captured near this, in the house of a Jain. The geological formation continues much the same as on the last march.

Bottom of the Bisly Ghaut. The road to Culgund lies over hilly, jungly ground. Two small tributaries to the Subramani river, the Bil-lola and Cuddoo, are crossed; both fordable, though the monsoon rains are now descending literally in torrents, and the rocks and precipices alive with leaping muddy rills. The jungle leeches were here equally alive, and vigorous in their insidious attacks, and before I was aware of their presence, had nearly fainted from loss of blood with which my shoes were filled.

The first sensation is that of itching; and, in withdrawing the hand from relieving that sensation, the traveller finds it covered with blood. In a state of fasting this animal is rarely more than an inch long, and hardly so thick as a small fiddle string. It has evidently keen powers of scenting blood, and if the traveller stop but momentarily in the road, they fasten on him in astonishing numbers, raising themselves on their

tails to strike like so many little *cobra de capellas*. Until gorged with blood, they move in this way with considerable rapidity. I have only found them troublesome during the monsoon, when the paths and trees are dripping with rain. In the dry season they retire to the marshes and other moist situations. Dr. Davy describes a similar sort of jungle leech in his *History of Ceylon*,* and says that their bites have in too many instances occasioned the loss of limb, and even of life. He mentions various remedies, but I found the best was to wash the leg with tepid water at the end of the march; rest it, and to avoid, above all things, scratching the bite. In case of a wounded vein, burnt rag may be applied to stop the hæmorrhage.

Culgund is a revenue choukie; contains about thirty or forty houses chiefly of Goudahs, Komtis, and a few Attiah brahmans; and was lately occupied by the insurgents under Appiah, Mallepa, and Timmapa Goudah, who were however soon dislodged by Colonel Williamson's force, which marched down the Bisly Ghaut from Bangalore.

About two miles from Culgund I crossed the Udhulla stream, which was then running with frightful velocity, on a rude raft hastily constructed on the spot of a few green bamboos lashed together.

The sand of this stream abounds in bits of garnet, quartz, and fragments chiefly of hornblende rocks, which now become the principal surface rock, though covered by thick beds of red clay into which the hornblende schist passes by weathering. Laterite is now seen less frequently, as the ascent of the ghauts commences at the bottom of the Bisly Pass, about one mile from Udhulla.

Ascent of the Bisly Ghaut. The ascent lies up a transverse break in the lowered prolongation of the ghauts, immediately to the north of the mountain Subramani, and for some distance along the right bank of the Subramani river. This sacred mountain is the highest peak in this part of the ghaut chain, though only rising, it is said, to the elevation of 5611 feet above the level of the sea. Its summit was concealed in monsoon clouds, but its bare shoulders of grey granite rise in a magnificent sweep from the green forests which mantle its back, and fringe its base.

After leaving the river bank of the stream, the road leads for four miles up the steepest part of the Pass, relieved here and there by short

* *Travels in Ceylon*, pp. 103 and 104.

flat steps, or terraces, till the summit is attained ; when the route lies along a cross valley having high hills on both sides, round the bases of which the road winds for some miles to the clear table-land of Mysore, where the land subsides in long gentle swells covered with delicious verdure, and the dense jungle breaks in plantation-like patches, and umbrageous clusters of noble trees. In the gorge of the Pass lay the broken barricades of the insurgents.

At the western foot of the Pass, and along the base of the Subramani, hornblende rock, containing garnets and dark-coloured mica, occurs, with veins of a very large grained granite composed of white quartz, red and white felspar, and silvery mica in very large plates : gneiss is seen on the steep face of the ghaut, and hornblende rock often coated with the red clay, and its own detritus. This formation continues to the summit of the ghaut.

Uchinghy. The formation here is generally gneiss. One of the hills of this rock is crested by hornblende rock in large prismatic masses. Patches of laterite occur, covering these rocks in various localities, and a few bosses of granite.

Kensum Ooscottah. This village is fairly on the table-land : near it I crossed the Hemavatti, one of the principal tributaries to the Cauvery, in a canoe. It is about fifty paces broad, with steep banks of clay, silt, and sand with mica. Near a temple to the Lingum in the vicinity of the village, mammillary masses of gneiss project from the red alluvial soil. This rock has here lost much of its quartz, and is of that variety of thick bedded gneiss which, in a hand specimen, might pass for granite ; the felspar is often of a reddish tint. Laterite is found in this vicinity a little below the surface in a soft sectile state.

The face of the surrounding country is diversified with low-rounded hills, often covered with a red clayey soil, which yields during the moist months a verdant carpet of short grass.

Springs of good water are found at depths of from twelve to eighteen feet below the surface. Rice and raggy are the staple articles of cultivation.

Ooscotta comprises about one hundred houses, inhabited chiefly by Lingayets and a few *Carnati* brahmans of the Smartal and Sri Vaishnavam sects, and a few Dewangurs.

A solitary Sri Vaishnavam brahman resides in the fort. The fort is said to have been built or greatly improved by Hyder, but is a place of

no greater strength than the ordinary second class ghurries of S. India. It contains two temples, one dedicated to *Iswara* and his consort *Parvati*, and the other to *Angini Dewi*. There are two others in the Pet-tah, to Angini and Buswunt. The staple articles of cultivation are rice and raggy.

Pallium. The road from Kensum Ooscotta into Mysore, lies over an undulating country, on the surface of which the dwarf thorn and aloe begin to be more thickly sprinkled than nearer the ghauts. Gneiss still outcrops in mammillary masses from a reddish alluvial soil. Here is a Jain temple to *Pursonath*, and an old pagoda to *Jinadur*. There are several Jain families still residing here. Some miles to the N. is the famous ancient capital of Hallibede, where there are some Jain *bustis*. Most of the inscriptions I have had copied.

Hassan and Gram. Gneiss and hornblende schist are still the prevalent rocks. Talc slate with layers of a fine greenish potstone interstratified also occurs, of which the elaborately carved walls of the temple to Keysu Dev, are constructed. At Hassan there is a large fort repaired by Hyder and Tippoo, with a glacis, covered way, dry ditch, and a sort of *fausse braye*; also a Jain temple to *Pursonath*. Gram is also defended by a fort of no strength, and of considerable antiquity: it is quadrangular, and has square towers connected with a high stone curtain and a mud parapet, the whole surrounded by a dry ditch. It occupies a slight ascent. The mica in the gneiss near Gram is sometimes replaced by talc, and passes into protogine.

My attention in this part of Mysore was often attracted by heaps of stones near the road side to which, as I have seen in Catholic countries on spots where murders have occurred, the passers-by each added a stone. From some of these, half-eaten portions of the human frame often protruded, dragged forth by the hyænas or jackals. On enquiry I found they were the remains of the cultivating caste, called the Wokeligars, who, if they happen to die of a sort of leprosy called "*Kor*" or *Thun*, are not suffered by the Brahmins to be buried below the ground in the ordinary way, "lest no rain should fall in the land"!

Chinrayapatam. After exploring the Corundum pits of Golushully, &c. (described in the Journal Royal Asiatic Society, No. XIV. p. 219) I passed through Kalkairy to Chinrayapatam, and thence by the Corundum localities of Appanhully and Barkenhully to Hirasaye, Cudhully, and Belloor to Ootradroog, granite, protogine, gneiss, talcose, and horn-

blende schists, penetrated occasionally by trap-dykes, constitute the formation, overlaid here and there by patches of laterite or kunkûr, on which rests the surface soil. The latter is usually reddish and sandy. Sometimes these deposits are wanting, when the substratum consists of the gravelly detritus of the subjacent rocks. At Belladaira a large bed of ferruginous quartz occurs. Country bare looking.

Chinrayapatam was anciently a Hindu town of some importance, and governed by a Bellala prince. There is still a *busti* here to the 24 Pir-thunkars. The fort was greatly added to by Hyder and Tippoo; but after all is of no real strength. The Hindu sculptures in the interior are for the most part executed in the potstone of the surrounding formation. Inscription on stone, dated 1400 A. S.

Ootradroog. The mass of granite on which stands the Droog or fortress, is somewhat saddle-shaped, and runs nearly N. and S., it terminates abruptly at either extremity. The northern extremity, crowned by the citadel, is a sheer scarp of rock nearly 200 feet high: its base is rugged with large precipitated masses. The southern extremity is also fortified, and the two forts are connected by two walls running along and enclosing the entire length of the ridge on which stands the remains of a small village.

From the top is a fine view of the peak of Sivagunga, the highest in Mysore (4600 feet); and of the great rock of Severndroog. The granite is similar to, but less porphyritic than, that of Severndroog.

Ootradroog was stormed in 1791, by Colonel Stuart, just previous to the first siege of Seringapatam.

Severndroog. From Ootradroog I proceeded to Maugoi, which has a handsome pettah, originally built by Kempye Goura, the founder of the fortress of Severndroog; and thence ascended the stupendous mass of granite on which stands the small pagoda and fort of Severndroog. The country for a considerable distance is wild and woody, abounding with low hills and rocks, among which a porphyritic granite prevails. The intervening vallies watered by the Arkawati and its tributaries, are in general well cultivated. A magnetic iron sand is found in the beds of almost all the rivulets, and smelting furnaces are numerous throughout this romantic tract.

The base of the great porphyritic mass of Severndroog is surrounded by tall forest trees, below which grows an underwood in which the

bamboo flourishes in great luxuriance. A deep ravine, forming a nullah bed, affords a convenient shelter for the wild beasts which infest it. Not far from the place where we crossed, I observed a capacious tiger-trap. The place has been nearly deserted since it was stormed by Lord Cornwallis in 1791, from the deadliness, it is said, of the climate; caused most probably by the decayed vegetation of the surrounding jungles. It is said that the clumps of bamboos were planted purposely to render the place as unapproachable as possible; but the bamboo, from the nature of its growth, is a tree little likely to be selected by natives for this purpose.

I ascended the rock from the north-east side. The major axis of the mass runs nearly east and west, and is crossed at right angles by a profound fissure which cleaves the rock from summit to base into two distinct portions, both fortified, so as to be independent of the lower fort, which is extremely extensive, and vulnerable at many points. After the breaching of this outer wall the garrison, panic-struck, fled to the citadel, or Bala Hissar, on the summit of the western rock, which was deemed impregnable; but the troops in the heat of the pursuit, entered the gates with them, and in one hour gained possession of the place. The assault was made from the N. E. side. Tippoo, after the peace in 1792, regained possession, and added considerably to the lower works in the construction of batteries commanding the former line of attack, one of which goes by his name; another by that of Hyder, while a third is expressively styled the *Shaitan*, or Devil, battery.

The western rock, called by natives "*Billaye*," from the light colour of its surface; which I found was caused by a species of lichen, terminates to the westward in a lofty precipice, down which many of the terrified garrison threw themselves. On it stand the ruins of Tippoo's mosque, a powder magazine, and a few other buildings.

The western rock is called *Kari*, from its dark rusty aspect, caused by the weathering of its surface, and the oxidation of the iron in its mica and hornblende. Why the whole rock should be called Subarna, or Golden, the native guides could not inform me. It is entirely composed of a granite, which from small grained may be seen passing into the large grained and porphyritic varieties. Some of the crystals of reddish felspar on *Kari durga*, were nearly two inches long, imbedded in small grained reddish granite.

On the rounded pinnacle of a magnificent conoidal mass of this porphyritic granite overlooking the whole rock, stands a small, but picturesque temple to Busuana.

I descended by a deep fissure in the rock to the temple at the S. E. base, where some Brahman priests and their servants still remain. Here may be traced the vestiges of the old gardens of the Poligar builder of the fort—Kempye Goura.

Along the North base are a few caves formed by the covered spaces between large granitic blocks. I regret being unable to get a specimen of the *Shin-Nai*, or red dog, which Buchanan heard was to be found in the forests of Severndroog, and which is said to kill even the tiger by fastening itself on its neck.

The *Shin-Nai*, Buchanan says, is quite distinct from the wild dog, which is said to be very common here. The forest abounds with good timber trees, most of which Buchanan describes, and among which may be enumerated the sandal-wood.

Iron furnaces. I have previously mentioned that a magnetic iron-sand is found in great abundance in the beds of the rivulets of this hilly tract. Furnaces for smelting it are said to exist at Hurti, Kunchakanhully, Timsunder, Naigonpully, Ittelpully, and Chicknaigpully. I visited those of Kootul, (or Cotta,) of which a description will be given hereafter. At Ghettipura, in Tippoo's time, steel is said to have been made.

Taverikairy. From Kootul the Arkawatty river is crossed: country undulating, and rocky; for the most part uncultivated, and jungly. The principal rock at Taverikairy is gneiss, with fragments of iron-shot quartz, green actynolitic quartz, felspar, fragments of hornblende, schist, gneiss, granite, and basaltic greenstone scattered over the face of the country, and occasionally patches of kunker.

Bannawar. Near Bannawar I found diallage rock projecting in large, angular, scabrous blocks, from the top and sides of a low elevation. The great mass of the rock was chiefly white felspar and quartz. The crystals of diallage were well defined, and passed from dull olive-grey shades, to the lively decided green of smaragdite. There was more quartz in this diallage rock than is seen usually in the euphotides of Europe; and the external aspect of the blocks was almost trachytic in its roughness. Not far hence, the gneiss, with which the diallage is

associated, apparently as a large vein, loses its mica, which is replaced by minute silver scales of graphite.

Nodules of lateritic iron ore occur, scattered with fragments of iron shot quartz, a greenish actynolitic quartz and felspar; fragments of hornblende, schist, gneiss, granite, and basaltic greenstone, scattered over the face of the country; and occasionally patches of kunker.

Bangalore. Gneiss is the prevalent rock about Bangalore, penetrated by dykes of basaltic greenstone, and occasionally by granite, as is seen near the pettah, and adjacent fields. The granite in these localities splits into the usual cuboidal blocks, or exfoliates into globular masses. It often contains hornblende in addition to mica.

The gneiss strata though waving and contorted, as seen in the rock in the middle of the tank near the Dragoon barracks, have a general N. and S. direction, and often contain beds of whitish quartz preserving a similar direction. The strata are nearly vertical.

Approaching Bangalore from the west, a bed of laterite is crossed, forming a hill on which stands a small pagoda. This bed extends northerly in the direction of Nundidroog, where laterite also occurs.

In other situations, covering the gneiss and granite, a reddish loam is usually found, varying from a few inches to twenty feet in depth, containing beds of red clay used in making tiles, bricks, &c., the result evidently of the weathering of the granite, gneiss, and hornblende rocks.

Colar. A similar formation continues to Colar, a small fortified town, notorious for its breed of vicious horses, and for being the birth-place of the celebrated Hyder. It lies about thirty-eight miles to the E. N. E. of Bangalore. The gneiss is occasionally interstratified with beds of hornblende schist.

The hill to the N. of the village, on which stands the ruined fort of Aurungzebe's General, Cassim Khan, breaks the monotony of the surrounding table-land. A spring and a small patch of cultivated land on this eminence, probably tempted this Mahomedan Noble to make it his temporary residence.

Baitmungalum. Granite, gneiss, and hornblende schist are the prevailing rocks. Benza was inclined to believe that the blocks of granite seen in the plain, a mile or two west of this place and north of Golcondapatnam, are erratic boulders; but, after careful examination, I am

inclined to believe they are *in situ*, or very nearly so, and are merely rounded by the process of spontaneous concentric exfoliation elsewhere described. They are outgoings of great granite veins or dykes in the gneiss.

About eight or nine miles east of this, the Mysore frontier is crossed into S. Arcot. Kunker occurs on the banks of the rivulet near the village, both on the surface and in a bed below the alluvial soil. Efflorescences of muriate of soda are also seen in the vicinity.

Baitmungalum lies on the eastern flank of the gold tract which, according to Lieut. Warren, who examined this district in 1802, extends in a N. by E. direction from the vicinity of Boodicotta to near Ramasundra. The gold is distributed in the form of small fragments and dust throughout the alluvium covering this tract.

At Marcupum, a village about twelve miles S. W. from Baitmungalum, are some old gold mines, worked by Tippoo without success. The two excavations at this place demonstrate the great thickness, in some parts, of these auriferous alluvia. They were thirty to forty-five feet deep, respectively. The following is a list of the layers cut through.

First mine.

1. Deep brown earth, $1\frac{1}{2}$ ft.
2. Grey argillaceous earth with gravel.
3. Deep brown earth, (No. 1.)
4. Hard grey and yellow clay.
5. Hard whitish argillaceous earth.

Second mine.

1. Three feet of a black argillaceous earth with gravel.
2. Dark brown earth with stones.
3. Hard clay streaked black and yellow.
4. Hard large black stones, argillaceous.
5. Black earth with gravel.
6. Hard black clay.

The stones found in the hard whitish earth, No. 5, of the first mine, are described as of a siliceous nature, colour black, changing to a deep rust-colour where they seem to decay: a few parallel streaks, about which adheres a green and yellow substance, mark their value to the native miners.

The metalliferous stones in the second mine differ from the above, as they also differ in the matrix. They are of two kinds, viz. 1st, hard, black,

and argillaceous; and 2nd, hard, white, and siliceous. A deep orange soft substance adhering, marks their value. This substance appears, however, to be superficial, marking the surfaces into which the stone splits on being struck.

Lieut. Warren noticed that a sort of red earth, generally two feet deep, and succeeded by a white calcareous earth of equal depth, the under stratum of which consisted of large white decayed stones, seldom failed to contain an ample proportion of metal. The average proportion of gold to earth is as one grain of the former to 120 lbs. (avoirdupois) of the latter.

There can be little doubt that the auriferous black and white stones are fragments from the gneiss, granite and hornblende schist, which base this auriferous tract, and constitute the singular ridge which runs through it in a N. and S. direction, and which may be regarded as having furnished most of the materials of the reddish alluvium on its east and west flanks, and therefore as the true matrix of the gold. The orange-coloured stones I found to be caused by the oxidation of the iron in the mica.

Lieut. Warren had this alluvium washed and examined in various places throughout the gold tract, and points out as the most promising localities,—the Baterine hill and its vicinity N. of Dasseracotapilly, Corapenhully, Shapoor, Buksagur on the S. bank of the Palaur, five miles E. from Baitmungalum, Wurigaum, in a thick jungle W. of the village, which is situated about ten miles S. W. from Baitmungalum.

The process of extracting the ore from the stones is simply by pounding them, and washing the powder in water: the gold-dust sinks to the bottom. An equal proportionable quantity of gold is extracted from the powdered stones as from the earth.

The gold-dust obtained yielded on assay at the Company's mint, 94 per cent.

This auriferous range on the table-land of Mysore, may be traced to the eastern ghauts; southerly, by the hill fort of Tavuneri, to the S. of Caveripatnam mutta in the Amboor valley. Two Passes, however, break its continuity near Tavuneri.

To the N. it appears to terminate at Dasseracotapilly; though the line of elevation, taking a gentle easterly curve, may be traced by the outliers of the Baterine hills; Auminiconda or Awnee, Moolwagle, Coo-

roodoomulla, Rajeegoondy, to Ramasundra in the Cuddapah collectorate, a little W. of Panganores.

Vencatagherry. This is the first march from the frontier into N. Arcot. The formation is similar to that of Baitmungalum; but granite (the grey variety) is more prevalent, and the quartz more impregnated with iron. Magnetic iron sand is procured and smelted in the vicinity. It is found as usual mingled with quartz sand in the beds of streams which have their rise among the hilly tracts.

Naikenairy. A small village, formerly under the Poligar, situated at the top of the Pass to which it gives its name, and which leads down the ghauts to the plains of the Carnatic.

Evident marks of the great disturbance and dislocation suffered by the strata are visible in the rugged physical aspect of the country to the eastward, and further confirmed in examining the sections of the rocks, whose layers are found broken, on end, vertical, and at various other degrees of inclination down to the horizontal.

The grey granite which chiefly composes the ghauts here, is a compound of white felspar, quartz, dark green mica, and hornblende. The mica is sometimes seen in round nests as large as a man's head, which in weathering fall out, leaving corresponding cavities in the rock. These are seen in the faces of some of the precipices, and impart the appearance of having been caused by cannon-shot. Iron ore, and quartz impregnated with iron, are found in considerable abundance. Veins of quartz are common, also of reddish foliated felspar, either alone or with quartz, often coloured of a lively green by actynolite. When these three minerals are combined, the structure of the mass is not unfrequently porphyritic; small cavities lined with an orange-yellow powder are seen in the red felspar, also a micaceous brilliant metallic powder first noticed by Benza, and which he seems to think is cerium, but this idea has not yet been confirmed by chemical analysis, which is a desideratum.

The descent of the ghauts here is steep and abrupt; and five miles and a half long from Naikanairy to the valley of Buttrapilly at the foot of the Pass.

The descents of the ghauts by the Mooglee Pass from Palamanair, and by that of Domaracunnama from Ryachooty, are by no means so abrupt or continuous as this: the formation is similar, but the ghaut chain is more broken.

From the base of the Ghauts by Lalpett to Arcot. From the base of the Ghauts by Lalpett to Arcot, the formation is similar. The bold ridge of Paliconda is chiefly of the variety of granite termed "Syenite," or a granite in which mica is replaced by hornblende, and in which usually a reddish felspar forms a prominent ingredient. Its structure in this mountain mass is both close-grained and porphyritic, and it is penetrated by several dykes of basaltic greenstone having a general N. and S. direction, but throwing off ramifications at nearly right angles. Eurite is met with in veins near the summit on which the pagoda stands. Dr. Benza appears to suppose the granite of Paliconda of posterior origin to that of the Ghauts; but as his opinion is grounded entirely on Lithological difference, and its association with eurite, basalt and porphyry, the age of which has not yet been determined, and which are moreover equally associated with the ordinary granite of S. India; we must hesitate before hastily admitting this hypothesis in absence of the other more decisive proofs of the age of Plutonic rocks derived from disturbance or non-disturbance of strata of ascertained age, with or without alteration, superposition, &c.

Poni. Near Poni, and Mymundeldroog a few miles to the N. E. of Vellore, granite still prevails, running in a broken chain of rocks up to Chittoor, and tilting up the hypogene schists. At Lalpett, between Poni and Arcot, is a ridge east of the Bungalow, having a S. westerly direction, and evidently an outlier of the great ghaut line of dislocation which sweeps in a curve from Naggery by Raj, and Chellempollium, to the Moogli and Sautghur Passes. The short ranges between Arcot and Vellore, those of Paliconda, Vanatedroog, and Javadie on the eastern flank of the beautiful vale of Amboor, are all equally subordinate to this line of dislocation. Through them by transverse gaps the Palaur, having traversed the longitudinal wall of Amboor, and the Poni, after having irrigated that extending from Chittoor to the N. bank of the Palaur, find their way easterly to the plains of the Carnatic.

The summit of the Lalpett ridge is crested with bare blocks of a dark massive hornblendic rock; but the great bulk of the hill is composed of gneiss penetrated by dykes of basaltic greenstone and granite, great disturbance in the strata is observable. Towards the N. extremity of the hill the gneiss is scarcely to be distinguished from the granite, except where large surfaces are exposed. The granite often passes into pegmatite. In some blocks I found the dull olive-green mica replaced

by a light-green translucent potstone, approaching *nephrite* in mineral character. This mineral also occurs in the hornblende rock in fragments, about a quarter or half an inch long, which frequently assume the rhomboidal form of felspar crystals, and give the rock the appearance of an elegant porphyry. At the exposed surfaces the softer potstone resists the action of the weather, more successfully than the harder imbedding hornblendic paste, from which it stands out in relief. Blocks of it occur near the well in the tope close to the Bungalow, where it may be seen outcropping a prismatic or jointed lamellar structure. It is evidently a variety of protogine, and rare in Southern India. I recollect no published description of it.

The sections of the soil afforded by the wells here, show,

1st. Three feet of a layer of reddish brown sandy loam.

2nd. One to two feet, gravel, angular and from the ridge.

3rd. One to two feet weathered rocky detritus, and kunker occasionally.

Caverypauk. From Lalpett the road lies by the populous town of Wallajah-nugger, on the North bank of the Palaur to the Caverypauk. The ghaut elevations, and their subordinates, have now been left behind, and the plains of the Carnatic are in front varied only by a few low hills near Wallajah-nugger. Near Caverypauk the fine white kaolinic earth, decayed pegmatite, of which many of the Arcot goglets are made, is dug.

Sri Permatoor. After a day's examination of the temples and sculptures at Conjeveram, I reached this birth-place of the celebrated Brahman *Guru*, and founder of the Sri Vaishnavam sect,—Rama Anuja Achari,—who is supposed to have flourished in the eleventh century of the Christian era, and converted many of the Buddhists and Jains, who then constituted the mass of the population, to the Brahmanical faith.

At Conjeveram, I was waited on by a number of Brahmans of the Smartal sect, whose *Guru* is Sencra Achari, priests of the great temple to Siva there. They complained much of the higher amount allowed to the great temple of the Sri Vaishnavam, at Little Conjeveram, viz. 12,000 rupees per annum, while that to their own chief is only 2,000. This difference they say originated in the partiality shown for the Sri Vaishnavam sect by the Hindu minister of the then Nuwab of the

Carnatic, the famous Wallajah. The other sects of Brahmans prevailing here are the Telinghi, Madual, and Shaivum; and it is calculated that Conjeveram contains nearly a thousand families of Brahmans of the above five sects. Remnants of the old Jain temples are traceable in fanes now occupied by their fierce Brahmanical persecutors; and there is still one family of this sect living at Conjeveram, and a small *busti* or temple at Tripetty Goodum, a neighbouring village.

In the erection of the temples, the Hindu architects like the Egyptians, in the N. and S. disposition of their walls, appear to have gone by the polar star or the rising and setting of the sun, rather than by the magnetic meridian. In their tanks near the place I observed both the sacred lotus or Tamari (*Nymphæa Nelumbo*,) and the smaller lotus, (*Nymphæa lotus*) called by Tamuls, "*Alli*," with its flower of the richest and deepest pink, studding the surface of the clear water which is often completely carpeted with its broad peltate serrated leaves. The seed of this aquatic plant is eaten, and also its root.

Much of the grey granite used for the foundation and lower parts of the *Gopars*, *Vimanas*, and walls of the temples is, I am told, brought from the rocks of Sholingur, about twenty-five miles to the west by north, and from Tirvaloor.

Some large blocks of a bottle-green hornblendic rock, resembling that of the Palaveram hill, were brought from Pattamully coopum.

Astronomy, for which the Brahmans of Conjeveram and Trivaloor were once so famous, is now at a low ebb. The Joshi of Great Conjeveram is a Telinghi Brahman, named Yaikambria, who adopts the tables of the *Ghandra Sidāhanta* of Anāwa Ayenga, a Sri-Vaishnavam Brahman of Little Conjevaram; but the most celebrated Joshi lives at Caverypauk; he is a Brahman of the Smartal sect, named Rama Joshi. They calculate the movements of the heavenly bodies and eclipses for each year; the lucky and unlucky moments; and draw out written annual almanacs. But their principal occupation is astrology, calculating of nativities, horoscopes, &c.

Sri Permatoor. The plain around Sri Permatoor, as at Conjeveram, undulates slightly; and gradually inclines towards the sea coast, which is about twenty-seven miles to the eastward. The lower grounds are occupied by tanks, some of them of great size, as is the wet cultivation

they irrigate. The tank of Sri Permatoor is said to water 25,000 acres, chiefly rice-fields yielding two annual crops.

The higher grounds are often uncultivated, and covered with low bushes, chiefly of the dwarf date, (*Elate sylvestris*); the thorny *carais*, (*Webera tetrandra*); the fragrant Kellacheri; and the prickly pear, over which tower the stately fan-palm and cocoanut.

This maritime province of Chingleput, or "the Jaghire," the first ceded to us in S. India (A. D. 1763 by Nuwab Wallajah) has an area of 2253 miles; a revenue (chiefly derived from its wet cultivation, and the duties on salt manufactured on the coast) of nearly fifteen lacs of rupees, and a population of about 108 to the square mile.

The surface soil in the vicinity of Sri Permatoor is a sandy, reddish loam, overlying either thin beds of a loose coarse sandstone passing into white and ferruginous shales, laterite or kunker mixed with sand, or "*chikní muttí*," a tough greyish marl imbedding fragments of granite rocks, chiefly felspar. In digging for water near the village, the following is a list of the layers usually cut through.

1st. Reddish sandy loam,	5 feet.
2nd. Angular granitic gravel, granitic or lateritic, } mingled with kunker,	3
3rd. Chikní muttí,	4 „
4th. Loose sandstone,	4 „
5th. Sand,	2 „
	—
	18 feet.

At Conjeveram the wells are much shallower, the bed of sand in which the water is found lies under similar layers of loam and *chikní muttí*, on an impervious bed of rock or clay. The Wudras tell me, there, that they never have occasion to dig down to the rock.

On the hard surface of the plain at Sri Permatoor are found, near the Traveller's bungalow, a few fragments of a hornblende rock resembling that of Palaveram, pegmatite, grey granite, a ferruginous hornblendic rock, white and reddish shales with edges little worn, together with a few scattered pebbles, well rounded, of a compact reddish sandstone or quartz rock, exactly resembling that of the Naggery hills,

about fifty miles N. of this. It is very evident, from their rolled aspect, that these hard quartz pebbles have travelled, and been subjected to the action of water in motion; but whether they have been washed direct from the parent rock to the place we now see them in, or whether they were once imbedded in deposits of laterite on, or near the spot, and which have since been swept off, is uncertain. A little farther to the westward of the bungalow, the surface of the plain is strewn with the harder debris of a bed of laterite, a circumstance in favour of the latter hypothesis, and among which are rolled fragments of a chocolate sandstone, exactly resembling those found by my friend, Cole, in the laterite of the Red hills. Rounded pebbles of white and red ferruginous quartz are also scattered on the surface, and beds of a fine light-coloured sand, like that of the Egyptian desert, and evidently not the result of the disintegration of rocks *in situ*. In short, there is every appearance of this part of the Carnatic having emerged at no distant geological period from beneath the surface of the water.

From the little worn aspect of the fragments of the granitic rocks, and the softer shales, it is evident that these rocks are at no great distance hence *in situ*: accordingly I continued my search in the plain to the westward, and at length succeeded in finding the white shale *in situ* in the bed of a small stream which feeds the tank, and on its banks a light grey sandstone outcropping in the bed of a small pool; both rocks in horizontal strata, the sandstone overlying the shale. The sandstone is rather coarse or granular in structure, being composed of angular grains of greyish quartz held together by a white felspathic paste. In some excavations a little to the east of the bungalow, it passes both into a conglomerate imbedding small rounded pebbles of white quartz, and into a ferruginous sandstone resembling that imbedding silicified wood near Pondicherry. This sandstone, like the laterite with which it is associated, has evidently been broken through, and stripped off in many places by aqueous denudation, its strata being by no means thick or continuous.

It is found in the plain between Madras and Naggery in a more consolidated and compact form, and has been judiciously employed on account of its containing but little or no iron, by Lieut. Ludlow, in the construction of stands for the instruments in the Magnetic Observatory

of Madras. Its locality, according to native information, is about six miles and a half, E. by S. from Tripassore, a little N. of the Madras road, near the village of Permaul Naigpet. It here imbeds ferruginous reniform nodules, and a few pebbles of the older sandstone of Naggery, and makes an excellent building stone. Like the laterite, it is usually found occupying the higher parts of the undulations which traverse the plains of the Carnatic, in lines running parallel with the eastern ghaut chain, of which great dislocation they probably mark subordinate, synchronous elevatory forces. They are interrupted, usually, by transverse vallies, through which the great lines of drainage from the table-lands pass off to the sea.

I was unable to find the granite and hornblende rock in situ, but I have little doubt that they are to be found basing the plain.

Concretionary sandstone sometimes occurs in the loam and silt overlying the sandstone.

A little to the eastward of the bund of the tank is a bed of laterite similar to that of the Red hills, the extent of which I had not leisure to trace. It is used for making roads.

Poonamalee. Between Sri Permatoor and Poonamalee, north of the large Chumbrumbancum tank, a bed of laterite runs to the northward of the road, which in structure resembles that of the Red hills, and another is crossed, or a spur of this, shortly afterwards.

A third bed is seen between Poonamalee and Madras, near Nabob's Choultry. They afford good material for making and repairing the road, which has been taken advantage of. The laterite enters into the construction of the fort at Poonamalee and St. Mary's Church at Madras; the base of the pedestal supporting the Munro Statue, the construction of the public roads, &c.

At Madras the soil is sandy, overlying beds of a bluish-black clay interstratified with layers of sand and reddish clay, and occasionally a bed of angular granitic gravel. The whole rests on the solid granite rock.

Account (Part II.) of parts of the Cabool and Peshawar Territories, and of Samah, Sudoom, Bunher, Swah, Deer and Bajour, visited by Mulla Aleem-ulla of Peshawar, in the latter part of the year 1837. Arranged and translated by MAJOR R. LERCH, C.B. Late Political Agent, Candahar, under whose instructions the Tour was made.

"Moorcroft, Vigne, Burnes, Masson, Leech, and Wood, had travelled in the country, yet when General Pollock was at Peshawar and the Khyber closed, there was no trustworthy information to be procured regarding the Karifa, (Karapah?) the Abkhánah or the Tirah routes from Peshawar to Jelalabad."—(Recent History of the Panjab, from the *Calcutta Review* for September 1844.)

"Of the Kohistan (Eesafzai), my information is, I must confess, very imperfect, and will be here limited to nearly a barren detail of names."—(Captain E. Conolly, *Asiatic Society's Journal*, No. 105, 1840, page 929.)

"The much-to-be-regretted death of Doctor Henderson, has deprived us of authentic geographical knowledge respecting the valley of Suhát, Bonler, the valley of the Deer river, and the country of Bajáwar."—(Vigne's *Cashmeer*, Vol. II. page 310, 1842.)

The author of the Recent History of the Panjab has gone considerably out of his way (even to the Haft kotal) to prove that every traveller across the Indus has failed both in his duty to his Government and to the geographical public, and seems to forget that a London publisher is not always the person to whom a Government servant should send surveys of Military Passes.

In justice to the late Cabool Misson of 1836-38, (two of whose members, Burnes and Lord, are dead, and a third, Wood, has retired from the service), I feel it a duty to record that before the advance of the Army into Affghanistan, Government was by the members of the Mission put in possession of surveys (made on horse and camel back) of the Khyber and Bolan Passes, and of that leading from Cabool viâ Bamian into Turkistan, and of accounts of all the other Passes leading from the Indus into Balochistan and Affghanistan, as well as of those leading from Cabool into Turkistan over the Hindoo Coosh. If the author of

the Recent History will refer to the published (not in Albemarle street) account of the Khyber Pass, dated Cabool, 1st October* 1837, he will find the description of the three Passes of Tátára, Karapah, and Abkhánah thus prefaced:—"There are three other Passes, which are connected with this one (the Khyber), in as much as a simultaneous passage would most likely be attempted by an invading force through more than one."

The author of the Recent History also blames the natives of the country for calling the Pass, Haft kotal, and blames all Europeans for copying them.

While Darrah is a word applied both to a valley (Shahar Darrah, Shah Darrah), and to a defile (Darrah i Khyber, Darrah i Bolan), the word Kotal is applied to a ridge either rising from the plain or to the surmounting ridge of a Pass; and the Pass that puzzled the wide-awake author of the Recent History, the "Daylight Traveller," to account for its name, is called Haft kotal, or seven ridges.

It is a pity, however, that the natives were not taught by our Recent Panjab authority to call it Haft kotalak, and that Europeans were not taught to translate it the seven paslets, and this new-coined word might be entered in the dictionaries in which Kotal is not to be found opposite to Kotalak.

The word for a ridge must not be confused with the one for a spare horse led in state before a chief. I hope the author of the Recent History of the Panjab will next give us the Recent History of the Protected Sikh States, and in the Preface parody the above quotation thus—

"* *, * *, * *, * *, * *, * *, and * *
had travelled in the country, yet when the British attacking force was at Thancsir, and the insurgents in Kythul, no information regarding the fort was to be procured."

I was only three days in Peshawar in 1837, and was never again in that neighbourhood until with General Nott's force in 1842.

From Dacca to Peshawar there are four roads; the Khyber, Abkhánah, Karapah, and Tatara.

Dacca contains 100 houses of Momand Afghans, of the clans Alamzai, Morcha-khel, and Moosázai, who act as guards to travellers and kafilas, who without them are sure to be plundered.

No revenue is received from these people ; on the contrary, they were always paid by the rulers of Cabool for keeping the above roads open, which they shut immediately their pay was stopt or kept in arrears.

Their charge for protection is,

On every horseman, or horse load,	2/3 rupees.
On every camel load, or pair of kajawahs,	3/3 ditto.
On every foot passenger,	2/3 ditto.

Their chief is Sa'adat khan, who has command of three of the roads, Tahtarah, Abkhánah, and Karapah, as well as the river route by raft from Jelalabad to Peshawar. He lives at Sulpoor on the other side (from Dacca) of the river. He is in the employ of the rulers on a salary of 12,000 rupees, and the Momands on the above roads, estimated at 45,000, acknowledge him as chief.

On every traveller by raft, one rupee is levied. The roads on this (the south) side of the river, which flows from west (Cabool) to east (Peshawar), are hilly, having many ascents and descents.

The road to Peshawar called Karapah, on the other side of the river, is also hilly and difficult, but not so much so as the others, it being possible, with management, to get guns over it. They have now stopped it up.

The other two roads, Abkhanah and Tahtarah, are safe.

The Khyber road is that for artillery and armies, but the Khyberies are great robbers, and often render a passage by it unavailable. Their word is not to be depended on. They are said to amount to 35,000 matchlock men. There are few habitations on the road, and even off the road they (the Afreedees) live a good deal in caves.

Their chief is Khan Bahadur, by clan a Malik Deen-khel. He and Saleem khan Jopa command 8,000. Abdul Kadar khan, Maddat khan and Alladad khan, Zakha-khels, command 10,000.

The Kukee-khels are 12,000. The Kumbar-khels 10,000. Alam khan Orakzai commands 10,000. The Shanwarees are 6,000. All these have their share in the Khyber.

Other portions of these tribes reside at Barah and Teerah, but they all have a share of the pay allowed by the rulers, and of the collections on the road at the tolls, and for Bodrakahs or guards, and all take their turn of service in the Pass.

From Dacca to Jamrood is in all 24 kos.*

From Dacca to Huft Chah (7 wells) is 4 kos; these were sunk^o it is said by a Cafer king of old, named Bagram, for the convenience of travellers. In those days the land around them, it is said, was cultivated. Their depth has never been ascertained. They are situated on the high road, four to the East and three to the West of it. The place is infested by thieves, and there is no water or habitations.

The Khyber Pass is a defile between hills, the eastern one belonging to the Shanwarees. The road runs from North to South. From Huft Chah to this Kotal of Sande khánah, is six kos. Below the Kotal (pass) immediately on the road a little to the South, on the skirt of the hill near a ravine, there is a spring of water of one mill strength, flowing from East to West; to the West there is a very high hill on which is a fort of the above named Cafar king, said^o to have been destroyed by Hazrat Alle, who defeated him, and opened the Khyber. It is now in ruins; there is a little cultivation here, which is a Caffila and army stage. It is on the boundary of the Zakha khel, and Thanwareeg.

There are two roads up the hill, one to the East below the brow, having four windings and ascents and descents three kos in extent; the other by the stream along a ridge, two windings and ascents and descents one kos in extent, not a gun road. On reaching the top the road is again level to Gurheelalbeg, which is four kos and a stage. There are twelve small square forts, having each a lofty tower and eight guz high many of which are hostile to each other. It is the boundary of the Zakha khel. There are 1500 matchlock men in these forts. There is cultivation round the forts, but the inhabitants gain their livelihood by robbing on the highway.

Even when royal armies paid for their passage, the advance and rear baggage generally suffered.

The Khyberee mothers are said to accustom their children from the age of five to six years to steal, beginning with neighbour's fowls, their spinning wheels and other household utensils, stinting them in food the days they are not successful. Sayuds, Molvees and Fakeers are not respected by them, and in stripping them, they jokingly say they intend to hang up their clothes as holy relics in their houses.

* The details are in kachah, or short kos.

From Gurheelalbeg to Alle Musjid, which is in the centre of the Pass, is four kos in a defile, the road is level and a stream runs in it.

Two kos from Gurheelalbeg towards Alle Musjid, from the hills to the West of the road, a spring of water of seven mill strength gushes out, and flows along the high road to the south.

In the Darah, there are Zaitoon, Baloot and other jungal trees. From this spring one short (kachah) kos further, the Pass contracts, and is covered with large stones, the water flowing over them; over and through which people get their beasts of burden with difficulty, and it is not even pleasant for horsemen. This place is reckoned the exact centre of the Khyber. From this gorge to the fort of Alle Musjid is one kos.

It is situated on a high hill, and was of old there. Dost Mahammud Khan, has rebuilt it for the protection of travellers, and for fear of the Sikhs, and garrisoned it with 100 men. It is very difficult of approach, and is situated on the hill that rises from the west of the road. There is a little level ground to the east. The fort was built originally by the kings of old, more it is said as a toll.

From Alle Musjid to Jabagai is three kos, a halting place, but no habitations. From Jabakee (also called) there are two roads. One to the south, called the Dahan-i-Darrah (mouth of Pass) road, to which entrance it is four kos, level and winding, abounding with canes and rushes, having a running stream. After leaving the Pass and entering the plain, there is a village of Khaleels named Jangoo.

The second road from Jabakee to the east is over hills known as the Shadee and Bagyaree road; it is winding, and the distance to Jamrood is four kos, in which there are three Kotals. Jamrood is the name of a village at which the Khyberees used to collect tolls, and give guards. One and a half kos after leaving the Pass there is a rising ground, on which Ranjeet Singh has built a new fort. From Jamrood to Peshawar is five kos to the east over a plain.

I give my Meerza's (he was so from 1838 to 1842) account of the Khyber, that from it judgment may be formed of the scrutiny with which he prosecuted enquiries.

The third road from Dacca to Peshawar is the Taktarah one, twenty kos in extent, very difficult, (the details are in kachah or short kos.) From Dacca to the east, three kos, is Kongah, having the river to the

north, and hills to the south. It contains 230 houses of Momands of the clan of Alamzai and Marchah khel, under Saadat Khan, and three Hindoo shops. From this village guards are procured, their chief is Daeem.

The rates for guards are,

A camel load or pair of Kajawahs,	..	3 $\frac{2}{3}$	rupees.
A yaboo load or horseman,	.. .. .	2 $\frac{2}{3}$	„
A bullock or ass load,	.. .. .	1 $\frac{2}{3}$	„
A foot passenger,	.. .. .	$\frac{2}{3}$	„

The guards are of the clans of Shanwarees and Afreedes, who with Momands and Balagoorees hold the road.

The chief of the Shanwarees is Rahmat Khan; those of the Balagoorees are Ahmad Khan, Rahat Khan, Afza Khan and Shahnawaz Khan, Shamsodeen Khan, and Shahabudeen Khan. The Shamsarees amount to 8,000, the Balagoorees to 8,000, and the Momands to 4,000. They live in difficult parts of the mountains. They are by occupation guards and muleteers, many mules being produced in their country. Half a kos after leaving Kongah there is an ascent of one and a half kos, and after it a second; when both are surmounted, a plain is entered of four kos extent, on which off the road are twelve forts of Momands. There is a well on the road not bricked, is finished with masonry for the use of travellers.

From this well there are two roads; one to the south-west is the Rahtarah, and the one direct in front to the south, is the Abkhanah one.

On the Rahtarah road, three kos from the well, are two forts, which is the first stage from Dacca.

From these forts the road for ten kos is in a defile having a running stream, and plenty of trees, but no habitation. The stage is at the foot of a hill.

On leaving this a hill is ascended called the Koh-i-Khuda (hill of God) for seven kos. After which is a second hill called Koh-i-Rusool, (hill of the Prophet) having an ascent of six kos, and descent. It is also called the Tahtarah hill. There are other five lesser hills to surmount, having ascents and descents of three and four kos. There are no habitations on the road, but after descending each hill a small

stream is met, sufficient for drinking purposes. The Shanwarees and Balagoorees are here mixed.

For the next four kos the road is very difficult, over ascents and descents to the Darrah of the Balagoorees ; after passing through which the village of Isportang, belonging to the Barozai Khaleels, on the plain of Peshawar, is reached.

The Abkhanah route from the well where the Tahtarah road branches of, is as follows :

One kos to the south from the well there is a Kotal to be ascended, after which for one and a half kos, there is a plain and then a second Kotal one kos to descend. At the bottom the Cabool river runs, and this is a stage ; the ferry is called Guzar-i-Guttah, there is a small plain but no habitations, the inhabitants having their dwellings and shops in the hills above, for the accommodation of travellers by raft. On a Caffila arriving, these people descend and prepare rafts of inflated bullock hides to cross the Caffila, if they have Badrakahs or guards with them. It is impossible to cross the river but by raft, and as the stream is confined by high overhanging hills, it is very difficult to proceed along the bank over them, either backwards or forwards, a camel not being able to go. The stage belongs to the Momands under Saadat Khan. On crossing the river there is no open space, and a halt is made among the rocks on the river side, of only sufficient duration to reload the beasts of burden.

The road then for four kos, is an ascent up the brow of hills, without water or habitations, much infested by thieves.

Then the village of Hyder Khanee is reached, which is surrounded on all sides by hills. The inhabitants live in mat huts, which amount to 100, and there are 200 matchlock men ; this is a stage.

Thence the next five kos are over ascents and descents ; Zaitoon and Baloot trees are plentiful, as well as the matting grass ; the occupation of the inhabitants is mat-making, men and women. They do not wear leathern shoes, but grass sandals, which they wear in and out of doors, on the hills and in the plains ; they are called Chaplee or Psaplai.

Thence five kos the road is hilly, having ascents and descents to Michnee, which is situated below hills, on the river, which is to the south. There are two villages furnishing 700 matchlock men. The

names of their Maliks are Buland, Rustum Khan, and Rahmut Khan, Moorchuh khel Momands under Saadat Khan. Although on the river side, their lands depend on the rain, being elevated. The inhabitants' occupations are guards and grain merchants, carriers, and mat-making. On the other side of the river are the Buzazai Khaled Affghans dependent on Peshawar.

The river is crossed on rafts, the charge for a load being $\frac{2}{3}$ rupees, for a foot passenger $\frac{1}{12}$ rupee, for a bullock or ass $\frac{1}{6}$ rupee. The Badrakahs from Peshawar toward Cabool charge as follows :

A horseman,	..	..	..	..	..	2 $\frac{1}{3}$	rupees.
A yaboo or mule load,	...	..	..	...	...	2 $\frac{2}{3}$	„
A bullock or ass,	..	..	..	..	...	1 $\frac{2}{3}$	„
Foot traveller,	..	...	..	..	..	$\frac{1}{3}$	„

The Badrakahs pay for crossing the rivers.

The fourth, or Karapah road, is as follows :

From Dacca the Cabool river is crossed by boat to Lalpoor, a large village, containing 3000 houses and 120 shops. Saadat Khan resides here. The distance by this road to Peshawar from Lalpoor is twenty-eight kos.

From Lalpoor to the north, at three kos, there is a Kotal called Khurpash, which is a winding ascent for four kos. It may be practicable for armies and guns. The next seven kos, to the stage, is level, which is called Murdar Dand ; no habitations.

The next stage is eight kos, to Gandawah, also called Gandaw.

The road then goes eastward eight kos to Shabkadar, a village of the Duabah of Peshawur.

Between Murdar Dand and Gandawah, there are two small Kotals, and from the latter place to the mouth of the defile, there are two Kotals, one large and one small, and others besides. In the large Kotal there are capacious caves, in which merchants and travellers spend the night. The road of Karapah is held by the Alamzai Momands, under Turbaz Khan, the son of Mazulla Khan, a relation of Saadat Khan's, and chief of 24,000 men.

Of these four roads, I (Alle Mulla) travelled by the Abkhanah, to Peshawar.

From a Dufter at Peshawar, I procured the following estimate of the area of the different dependent pergannahs :

Total No. of Jarebs.			
Yoosafzai,	1,25,000		
Mandad,	1,00,000		
Jagharzai,	22,000		
Bajour,	1,25,000		
Bunker,	22,000		
	3,94,000	Uncultivated.	Cultivated.
		1,34,700	2,59,300
Tarah and Bangash,	98,500	38,300	60,200
Orakzai and Bangash-i-Pay-			
ans,	98,000	48,000	50,000
Dahman and Banoo,	98,300	48,300	50,000
Khosh and Marwah,	98,000	48,000	50,000
Khattaks Balla and Hayan, ..	1,90,000	40,000	1,50,000
Wazeerees,	3,00,059	1,00,050	2,00,000
Torees and Jajees,	1,60,000	60,000	1,00,000
Suburbs (Ahaf) of Peshawar, ..	3,90,000		
Mohmands,	80,000		
Khaleels,	80,000	44,300	35,700
Daoodzais,	70,000	30,000	40,000
Khalsah,	70,000	35,000	35,000
Duabah,	70,000	30,000	40,000
Hashtnagar,	40,000	18,000	22,000
Gardens of Kashbah Bagram			
and Shake Mahal,	40,000	7,000	33,000

Peshawar, by another account I procured, is said to have a revenue of 9,15,300 rupees, derived from 3,24,000 Jarebs, divided into 7 Pergunnahs. Pergunnah 1st.—The Khaleels 25,000 houses in 41 villages, yielding a revenue of 1,05,000 rupees from 70,000 Jarebs. The chiefs being Arbab Janea Khan, Sadmast Khan, and Arbab Zaeed Khan, Miuhee Khel Khaleel.

Pergunnah 2nd.—The Momands 38,000 houses in 55 villages, containing 84,000 Jarebs, under Ghazeeden Khan, Kareem Khan, and Mahommad Khan, paying a revenue of 1,60,000 rupees.

Pergunnah 3rd.—The Duabah 25,000 houses in 5 villages, containing 70,000 Jarebs, under Arbah Abdulla Khan, Gagynnee Mandezai Khaleel and Arbab Hamza Khan and Arbab Sikandar Khan, paying a revenue of 1,50,000.

Pergunnah 4th.—Hashtnagur, 22 villages, 25,000 houses, 40,000 Jarebs, under Izzat Khan and Shahnawaz Khan Malmandzai, paying a revenue of 90,000 rupees.

Pergunnah 5th.—Daoodzais, 70,000 Jarebs, 20,000 houses, under Arbab Saadut Khan and Shahpasand Khan and Ahmad Khan; revenue 1,03,000 rupees.

Pergunnah 6th.—Shahee Mahal round the town, is applied to the cultivation in the old royal gardens; the Kasbah of Bagram contains 40,000 Jarebs, and pays a revenue of 50,000 rupees.

Pergunnah 7th.—The Khataks, revenue 1,50,000, under son of Abbas Khan and Ameer Khan, 70,000 houses, in 67 villages.

There is a Tappah also, called Khalsah, that the kings of old did not include in their revenue, but set apart for their household expenses. The Barakzais collect, it is said, 56,000 rupees from it.

There is also the Sayer of Peshawar, called kacheree, which produces 1,25,000; another Pergunnah of Peshawar is the Eesafzais to the North, 130 villages and 2,25,000 Jarebs.

This tribe inhabiting Swat, Bunher, and Sama are estimated, or rather were, at 9,00,000 spearmen and matchlock men. I have heard from old and respectable and well informed men of this tribe in Bunher, that Ameer Khan, their progenitor, had one son, Eesaf, who again had three sons and one daughter, Mandad, Malee, and Ako, and that the Malezais and Mandadzais inhabit Bunher, and the Akozais Swat, and the Tarkareen, called after the daughter of that name, inhabit Bajour.

That the Mandad and Razad clans of Mandezais inhabit the Sama (level) and have 69 villages, and musters 2,28,000 matchlock men, horse and foot, (2,09,000 foot, 19,000 horse,) and have 1,92,000 Jarebs of land. Should a powerful Government ever arise, 14,00,000 rupees might be collected.

The Malezais and Mandzais are in Bunher, having 70 villages and 1,00,000 matchlock men. It lies north of Sama, (93,000 foot, 7,000 horse.) They have 50,000 Jarebs of land.

The Akozais inhabit Deer and Swat, mustering 1,95,000 matchlock men, (1,48,000 foot and 47,000 horse.)

Deer and Swat contain 83,000 Jarebs. It is said that the whole of the Eesafzais matchlock men are estimated on the Hujrah. Each Hujrah contains 13 rebs, and each reb 19 zeer, each zeer 12 bakh-rahs, (shares) and each share 9 keelbahs, and to each keelbah 60 seers seed, and for every seer seed one Jareb, and every share furnished six matchlock men, foot or horse.

The Eesafzais have another custom, that of changing their villages and lands every two or three years.

Another Pergunnah is that of Bajour, inhabited by the descendants of Tackareen, and contains 1,25,000 Jarebs. The kings of old collected 1,40,000 rupees, they are now independent. The chief is Meer Alum Khan, who has thirteen guns, and seventy Shakuns, and 2,000 Jazaeels of Zattulla Khan's time. This Zattulla Khan is said to have been a Lodee, left by Aurangzeb as Governor of Peshawar, and to have made 12,000 of these long pieces, for taking effect on the Teerachs and Khyber robbers on their heights, of $2\frac{1}{2}$ gaz in length; these Jazaeels are called after him.

Bajour of old depends on Peshawar, from which it is N. W. It has to the north the Cafers,* with whom constant war is waged.

Another Pergunnah is Cuner, containing 46,000 Jarebs, which paid 34,000 rupees to the kings of old. Ahmad Shah Duranne gave it to Sayad Hajeesh, whose sons are the present chiefs, one named Sayad-wodeen; 20,000 matchlock men can turn out, (3,000 horse and 17,000 foot.)

No revenue was taken by the Sadozyes; Mahummad Azeem Khan, from Jalalabad, attacked Sayad Hajeesh, and making him prisoner, fixed the revenue of his country at 30,000 rupees. A further account of Cuner is contained in Part I. of this account.

The following is a more detailed account of the Duabah, which is inhabited by Zagyanees, under Arbab Abdulla Khan, and Sikandar Khan, sons of Hamza Khan, son of Ashraf Khan, of Shah Kadar.

They formerly received 4,000 rupees pay from the kings, and furnished 800 cavalry and 8,000 infantry. There are 48 villages in the Duab, containing 6,640 houses, and paying a revenue yearly of Rs. 1,21,310.

* (Siyah-Pósh.)—EDS.

I also gained the following particulars of Hashtnagar. It contains twenty villages, and 40,000 jarebs. The revenue is 95,000 rupees. The ruler is Sayud Mahammad Khan, brother of Sultan Mahammad Khan. He has a body of 700 cavalry, and 400 foot. The villages are as follow:—

Noushera, ..	6000	Rs. under Mulla Ghulam Kadir, 3000 Jarebs.	
Dheree,	1000	.. .. .	80 „
Kheskhêe, ..	6000	.. .. .	300 „
Nisata,	1000	.. .. .	70 „
Padang,	6000	.. .. .	200 „
Bhabda,	6000	.. .. .	2000 „
Charsada, ..	9000	.. .. .	2000 „
Gudee Bayáz Nu-			
jan,	2000	}	400 „
Gudee Hamud			
Gul,	700	}	100 „
Gudee Kaka khel, 800		.. .. .	150 „
Jum Darasha			
Nujan,	800	}	150 „
Razad,	2000	.. .. .	300 „
Oosmanzai, ..	6000	.. .. .	2000 „
Omarzai,	4000	.. .. .	2000 „
Sherzai,	6000	.. .. .	3000 „
Gudee Bunda			
Nujan khel, 1000		}	200 „
Tangee,	12,000	.. .. .	6000 „

under Malahs Dost Mahammad and Afzal Khan.

The fort of Hashtnagar has two gates and two guns.

From Peshawar eastward, I proceeded twenty-four kos to Deree on the other side of the Sandye river, included in the pergannah of Hashtnagar, inhabited by Mahammadzais. The former chiefs were Meer Baz Khan and Shahnawaz Khan; the present are Meer Ahmad Khan, the son of Zardad Khan Bamezye, on the part of Sayad Mahammad Khan. The revenue is 1000 rupees, there are 700 jarebs dependent on the rain, and 200 jarebs watered by six wells. The river water is not available for cultivation. There are 200 houses

and four Hindoo shops, seventy footmen and ten horsemen. There is a ferry boat on the river, used by merchants who trade between the Eesafzais and Peshawar. Two crops a year are produced of wheat, barley, Indian corn, and cotton. The inhabitants are at enmity with the Eesafzais regarding the pasturage of their herds on the plain to the east. The river is to the west of the village in which there is an island on which cattle are grazed.

Three kos to the south is the village of Kheshkee, which is on the river also, having a ferry boat. There are two kandeas, one called Bur kandee of Shekhs and Nujan khels, and the other kandee of Panchtana. The former has 600 houses, under Nujan Afzal and Nujan Ahmad Kheshkee. Panjtana has 1,700 houses and twenty-five shops of Hindoos. Both hamlets could furnish 300 matchlockmen, (260 foot and 40 horse.) It was formerly under Shahnawaz Khan Mahammadzai.

Between the two kandeas there is an earthen mound on which are Cafer ruins. Across the river to the west there is a bela, (island) on which cattle are grazed. The river water is not available for cultivation. There are seventy wells in the village. The revenue is 6,000 rupees included in Hoshtnagar. To the N. E. there is a plain called Merá, on which the plant called, in Persian Ushlan, and in Pushtoo Sanari, which is burnt for ishkhar (potash,) which is exported in thousands of kharwars by Khattak and Ormar merchants. It gives a greater return for labour than cultivation of grain. The inhabitants have 1000 cows, 700 buffaloes, 4000 sheep, and many asses, and are chiefly traders. They were at enmity formerly with the men of Noushera and the Eesafzais, i. e. before Runjeet Singh subdued the country.

It is three kos from Kheshkee to Noushera south-east. The chief was formerly Shahnawáz Khan, son of Faiztalah Khan; now Runjeet Singh has given it to Sardar Saiyad Mahammad Khan. The headman is Mulla Ghulam Kadur, the Sardar's Naib. Its revenue is 6000 rupees. There are 6000 houses, and 120 of Hindoos, and 200 shops, and 1000 matchlock men. The Parachahs are chiefly traders. The river is to the west of the village. There is a ferry boat.

Round Noushera there are 1000 jarebs of watered land, and 200 wells.

To the north of Noushera there is a hill called Tarkai, on which are the remains of Cafer buildings, and to the east there is a rising ground. Shahr-i-Safa, known as Shahr-i-Sabbak, on which are also Cafer remains, but no towers or minarets.

Below the skirt of the hill to the N. E. of the river are some houses of Afghans. There is another rising ground to the east, called Zadah Nujanah, and also the hill of A'dam and Durkhanee; the shrine of these lovers being below the hill on the south side, where there are also seventy houses of Afghans, and these two hillocks are near each other on the river between Noushera and Acora.

Across the river to the west there is another village also called Noushera, on the road newly built by Runjeet Singh, as is the fort. It was ruined by former rulers and by robbers. There are 200 houses a bazar, and a mandee.

I learnt that one Abdu Rahman, son of Imamudeen Parachah, a resident of Noushahrah, found a vessel of old gold coins on the neighbouring hill, and that on its becoming known, he suddenly decamped at night with his family to Kuram, in the vicinity of Bungash.

Leaving Noushahrah to the south, and passing the above hill, I entered the plain of the Eesafzais; the road leads through a defile in the hill called Tarkai, with difficulty passable to guns.

Two kos from Tarkai in the plain is a tank called Ateeh, and beyond it one kos, on the river bank, there is a road over an eminence on which are remains of Cafer buildings; and three kos further is another eminence called Dakhla, also having ruins on it. Two kos further is an eminence called Taree, also crowned with ruins, as well as with scattered houses of Afghans.

Two kos further on, there is a lofty eminence called Baba Deree, on which there is a square fort, built by Malik Daleel khan.

There are 700 houses of Eesafzais, and four wells and several young mulberry trees. The inhabitants are chiefly herdsmen: they are on good terms with Daleel khan, son of Jalal khan of Taroo, and at enmity with Ahmad khan, son of Lashkaree khan, of Hootce.

Half kos further on is the village of Toroo, and before reaching it is Kacho Daree, on which there are also Cafer remains.

There is a stream called Kalpanee, running from north to south through the village of Toroo, on which there are water wheels. Most

of the Mandad Eesafzais get their drinking water from this stream, which is fed from a spring. It has great capabilities, which might be brought to account by a powerful government. It is not much used by the tribes on account of their internal feuds. The villages immediately on its banks cultivate vegetables, Indian corn, and a little sugar-cane.

The reason that the Eesafzais never paid revenue is variously given. An account is, that the Eesafzais gave great annoyance to the authorities of the emperor Akber, when building the fort of Attock, and therefore when it was finished, a force of 12,000 men under the Wazeer Beerbal, was despatched against them, which was utterly destroyed by a miraculous shower of stones which fell on them in the Kala defile, brought down by the curses of a mad Eesafzai fakeer, by name Jahan khan, an Umar khel, who received some injury from one of Akber's authorities.

Akber granted them, in fear, a perpetual indemnity from taxation, and none of the Chaghatai, Moghul, or Affghan monarchs assessed them until the time of Runjeet Singh, who took advantage of their internal dissensions to get possession of the greater part of Sammá, from which he levies revenue only by yearly sending a large force to collect it.

Nadir Shah is also said to have remitted their revenue on account of their restoring to him his crown, which one of them stole while he was encamped near the Attock or Indus. Some say that it was remitted by a monarch, who became alarmed at getting 9,00,000 spears of revenue, which he once ordered to be collected at the rate of one from every house. Others say that it was remitted in consideration of the poorness of their country, and on condition of their eternally waging a religious war of extermination against their northern neighbours, the Cafers.

Mandad is said to have had five sons, whose descendants occupy the Sammá country of the Eesafzais (Afghanee) or Yoosafzais (Persian).

Kamal and Aman were two brothers, whose descendants were called, and are so now, Kamalzais and Amanzais.

The former are again divided into Mishar, (elder) Kamalzais, and Kishar (younger) Kamalzais.

The Mishar Kamalzais hold the villages of Hotee, Mardan, Mayar, and Baghdada, each containing about 2000 houses. Their chief oc-

cupation is trade in saltpetre. Their chief is Ahmad khan, son of Lashkaree khan of Hotee, who collects the revenue for Runjeet Singh from these four villages.

The Kishar Kamalzais hold the villages of Toroo, Ghala Deree, and Gujar Gadee, containing each on an average 2000 houses and 200 shops, to which merchants from Swat, Michnee, and the Punjab resort. Their chief is Daleel khan, son of Jalal khan, who is an enemy of Ahmad khan's, the latter having with the assistance of the Sikhs taken possession of his estates. Each of those villages could furnish 700 foot and 80 horse. Ahmad khan is a son-in-law of Anayatullah khan of Swat.

From Toroo to the east four kos are the Amanzais, who are again divided into Doulatzais and Ismailzais.

The Doulatzais hold Gurhee Amanzai, Gurhée Kapoorah, Shahbaz Gurh (Kot), and Derah Gurhee, each of which villages contains on an average 4000 houses, and could furnish 2000 foot and 200 horse. Their chiefs are Nasarulla khan, Namdar khan, and Ameer khan.

The Ismailzais hold Gumbat, and Barah Kot, and two other villages, each containing on an average 4000 houses and 200 shops, and being capable of furnishing 1000 matchlocks. They have to the west the Kalpanee stream generally speaking, but there are villages on either bank. Their chiefs are Mansoor khan and Zyarat khan. Sardar Huree Singh took away from the Ismailzais two guns that they had. The Amanzais have 3000 jarebs watered by the rain, and 1000 jarebs watered by the Kalpanee. They have internal feuds, and are constantly employed in fighting among themselves, or in robbing the highway. They are somewhat held in restraint by Ahmad khan, the Sikh spy. The ground on the borders of the Kalpanee, is capable of being cultivated to a great extent were safety secured the cultivator by a powerful government, and lacks of rupees of revenue might be collected; much of the land is capable of giving a ten-fold return on the seed.

The Sama country is bounded on the west by Asnee Kot, on the east by the Abaseen (Indus) at Amb, and Daraband on the south by the Attock (Indus), and on the north by Swat, Buner and Sudoom. It is 38 kos by 26. A particular account of the villages in it has been given to Major Leech, by Shekh Khashalee.

The country of Sama chiefly depends on the rain, and grows one crop. In some parts two crops are grown, where running water is procured.

The whole of Sama is said to be able to furnish 2,30,000 foot, and 12,000 horse.

From Gurhee Amazai to the north, towards Sudoom, fourteen kos, is the hill called Kadamar, beyond which is the village of Garyala, consisting of 100 houses on an eminence. This hill Pass is the boundary of Sama and Sudoom. The village contains seventy matchlocks, footmen, and six horse, under Lashkaree khan, who is at enmity with Mansoor khan, and friend with Nasarulla khan.

Two kos further is Gulyara, a fort on an eminence, of a square construction, containing forty kos within and 400 around it, with seven shops, and furnishing 200 foot, 27 horse, under Mansoor khan, and Yakooob khan, and Maddat khan. There are 700 jarebs in cultivation. Below the fort, there is a stream running from north to south.

Three kos further to the east is a hill called Doda, on which there are 400 houses under Afzal khan. Cultivation 600 jarebs.

One and a half kos to the north is the village of Sirah Derai, containing 600 houses, furnishing as many foot, and twenty horse, under Ashraf khan. Their lands are chiefly *lalmee* (dependent on rain.) They have some *abee*, (watered by streams or wells) also. The name of the stream is Naraikhod, which rises in the hills to the east. They are enemies of the men of Gurhee Amanzai, and friends with the men of Taroo.

Two kos to the north is the village of Machai, containing 160 houses, under Meer Mobeian khan and Ismail khan. Cultivation, *lalmee* and *abee*, giving two crops. They are independent.

One kos further is the village of Char Gholai, containing 300 houses, under Ameer khan. Cultivation mixed, (*lalmee* and *abee*.) They use the water of the Naraikhod for drinking: they are independent. To the west in the plain trees abound.

One and a half kos further is the village of Osai, containing 200 houses, under Meer Mobeian. Cultivation 700 jarebs *lalmee*, and 100 jarebs *abee*. The drinking water from the Naraikhod.

Two kos further is the village of Rustam, containing 600 houses, under Ramatulla khan. Cultivation 1000 jarebs *lalmee*, and 200

jarebs abee. The drinking water is from a stream issuing from the hills to the north. They are independent.

One and a half kos further to the west is the village of Bazar, containing 700 houses, under Mansoor khan. Cultivation 2000 jarebs lalmee, and 300 jarebs abee. Drinking water from the stream.

Further on to the west off the road are the villages of Palee, Cheenah, Suroch and Landai, each containing 300 houses, under Sahab Shah Nujan. The cultivation of each, 1000 jarebs lalmee and abee.

Two kos further on is the village of Alee, containing 700 houses, under Mansoor khan. Cultivation 1000 jarebs lalmee, and 100 abee. Independent.

Further on four kos to the north-east, through a jungle over a winding road, two villages are reached, one called Peetawai, the other Syarai, under Malik Gujar. They each contain seventy houses. The hill which is here called Mabandarai, is the boundary of Sudoom and Bunher. The Khatak, Eesafzai, Samah and Peshawar merchants go by this Pass to Bunher. It is difficult for laden yaboos, bullocks, and asses. The ascent is four kos, and the descent two.

From the village the road leads to the north, winding up the hill which is very thickly wooded, the interwoven branches sometimes stopping the road ; it is not of course a road for guns or even camels, a horseman being often obliged to dismount and lead his horse. Trees of different kinds, among them the Archah and Jalghoza, (fir and pine) are to be met with on these hills. The descent into Bunher from the top of the Malandasai Pass, is through a ravine. In this part of the country Mullahs and students (yalibilms), are much respected. There is no water in the Pass, or on the hills. In winter snow falls on the Pass, but does not lay on the ground.

One and a half kos from the Pass is the village of Zangee banda, in Bunher, in which there is no water. The inhabitants bring their water in pitchers from a spring at the foot of the hills to the north, one and a half kos distant. Cultivation 400 jarebs lalmee, and no abee. There are 130 houses, under Malik Kadazai.

On the road after descending the Pass, there is a shrine, or Mazar, of one Shekh Sher Kookho Baba, and a grave-yard. A fakeer, with his wife, officiates at the shrine. Kaffilas take a rest here. It is also a stage or halting place.

Three kos further to the north is a village called Nawai kilee, containing 700 houses of Burkhah-khel Eesafzais Bunherwal, under Zyarat khan and Meer Sahab khan. The cultivation is lalmee.

From this village to the east, in the hills, is a valley called Yoosaf Darrah, in which there are 400 houses; and adjoining it to the north-west is another valley, called Ghanum Darrah, containing 800 houses. Cultivation lalmee. Trees of the kinds Zaitoon, (olive) Baloot, (holly-oak) Archah, (fir) are plentiful, and serve for firewood. The interior of the valley is attractive and open, but the inhabitants are a lawless set, and have many quarrels at the time of changing lands. Their chief is Ahmad khan, son of Azad khan.

One and a half kos further on is the village of Kadappa, containing 300 houses, under Magdat khan and Muneer khan. Cultivation lalmee. Their drinking water is brought from a distance in pitchers on the head. They have large flocks and herds.

Two kos further north is the village of Pishtool Darrah, containing 1000 houses of Doulatzais, under Manzal khan and Natab khan, embosomed in hills. Cultivation 2500 jarebs lalmee. Their drinking water is brought from a distance from the east.

To the north of the village the road leads through a defile so narrow, that a laden ass passes with difficulty. Half a kos after getting clear of the defile a river is reached, flowing from west to east through hilly defiles, until it falls into the Abaseen. It fertilizes the whole of the Bunher lands, and those who inhabit its borders cultivate rice and chiefly live on it, boiled soft and mixed with ghee. The cultivation lalmee; wheat on rising grounds and skirts of hills.

To the north of the road across the river is the village of Shil Bandai, containing 400 houses, under Bahadur khan.

There is another, called Kalpanai, containing 500 houses, under Shahdad khan.

There is another, called Mash katta, containing 400 houses, under Fazal khan, and Bhadur khan, the son of Shahdad khan.

There is another called Kulgarai, containing 400 houses, under Nouroz khan.

There is another called Matwaridain, containing 2000 houses, under Mahib khan. They each cultivate the land of their bakhras, or

share, and pay no revenue. Their Maliks only commanding them in feuds with neighbouring Khels.

Three kos further to the west, after crossing a rising ground, is the village of Dakad, containing 300 houses under Azeem khan.

Two kos further to the north, is the village of Derai, containing 300 houses under Hajeah khan.

Further to the left (north) of the road, is the Burindoo river, flowing from west to east; and to the north of the road, a hill has been cut through by some king of old to give the river a passage, through which it rushes with great violence. The volume may be of 100 mill strength. The breadth of the cut may be twenty paces or less; on each side of this hill there is a plain. The name of this cut is Soorai kand.

Five kos further to the west, is the village of Heelai, the road being very bad through jungle, and over descents and ascents. The head of the village is Futteh Ali khan, son of Madar khan, Ashezai. It is divided into fourteen hujrahs, contains 1500 houses and 47 shops. The merchants from the Khattak country bring salt, cotton, oil and cloth, and take away grain, ghee and honey, to Peshawar. The inhabitants drink the water of the Burindoo, on which there are 25 water mills, which grind flour for the whole country. The village is on a soft rising ground, on which there are fissures caused by the water on all sides. The river passes in rear of the village; to the south of it firewood and forage are procured from the hills. The country abounds with sheep, cows, buffaloes, and goats. They are friends with the Salarzais and enemies of Doulatzais. Cultivation on rising ground (lalnee) 2000 jarebs, and on the river bank (ábee) 1000 jarebs (rice and Indian corn).

Two kos further is the village of Dagar, containing 400 houses, under Bahadur khan.

Three kos to the west is a large village called Anghapoor, consisting of 14 Hujrahs, containing 2000 houses and 50 shops, under Jarwar khan and Rahmat khan. Cultivation 2000 jarebs lalnee, ábee 1000 jarebs; the rubee fusul, wheat and barley; the inhabitants live principally on rice; they are enemies of the Salarzais and friends of the Noorzais.

Four kos further is a village on a rising ground called Torasak, composed of 18 hujrahs, and containing 2,500 houses and 50 shops, under Bulaud khan, who is a friend of Tallalee khan of Heelai, and an enemy of the Salarzais.

From Heelai five kos to the east, is the shrine of Peer Baba, the spiritual father, and place of pilgrimage of all the people of Swat, Bemher and the Eesafzais. There is a village also called Zyarat, containing 1,000 houses and 50 shops, under Myún Sayad, Sarbulund Shah and Myung Sayad Ahmad Shah and Afzal Shah, and Maliks Saádut khan, Tozal khan, and Ahmad khan. The Zyarat of the Peer is surrounded with numerous sheesham, zaitoon and mulberry trees. The Zyarat has no dome; there are two sarcophagus in the shrine of ornamented gypsum, over the tombs are narcissus, zumbuk and roses growing, and the mujawuns, or officiating priests, amount to 400 or 500; they receive all votive offerings and offerings as thanksgiving. The Shekhs and Sahabzadahs entertain all visitors and strangers. The whole people of Bunher are more or less influenced and guided by these Sahabzadahs.

Twelve kos to the north-west is the Kadakad hill, beyond which is the Pergunnah of Swat, and on the road are the following six villages.

1st. Kingar galai, consisting of 200 houses, under Shahbaz.

2nd. Chhurai, containing 300 houses and four hujrahs, under Abdulla khan.

3rd. Bazargai, containing 300 houses and four hujrahs, under Azam khan.

4th. Bam pawkhah, containing 200 houses and four hujrahs, under Maddat khan.

5th. Johar, containing 300 houses and four hujrahs, under Maddat khan.

6th. Sugaren, containing 500 houses and four hujrahs, under Maa-zam khan.

Each hujrah contains eighteen bakhrahs, and each bakhrah twelve rupees, (jarebs?) and to every rupee twenty foot men, and 2 swars. Every rupee contains sixty jarebs of land.

Their drinking water is from a stream that issues from a ravine. They are all Salaicais, and are at enmity with the Ashezais and

friends with the Doulatzais, and are independent. There are 2,000 jarebs of lalmee cultivation on rising grounds, and 1,500 ábee on the banks of the stream, (Shelah.) The inhabitants are owners of large herds and flocks.

There are besides in all directions villages in vallies in the hills. For instance, to the east, near the Abaseen river, are the following :

Bagra, containing 500 houses under Buland khan. Babda ditto 400 ditto. Padba ditto 500 ditto. Chagharzai ditto 700 ditto, Aman khan. Marhad ditto 400 ditto. Kot and Cabal. ditto 700 ditto, Sahah khan.

The inhabitants of the above are Sherzais and Eesafzais. Their chiefs are Iman khan, Buland khan and Sahab khan.

The cultivation is 4,000 jarebs of lalmee, and 1,500 jarebs of ábee, and each village contains two or three hujrahs each.

To the west is Ghazee khanah, containing 700 houses and four hujrahs, under Sarwar khan, Gudazai, the ábee cultivation being from the Burindoo.

Three kos further is another village called Nadai, under Ralmat khan Gudazai, containing two hujrahs and 200 houses. The above two chiefs are friends, and at enmity with Mohsan khan Shamaszai.

Three kos further is a village called Bae, under Mohsan khan, containing 400 houses and three hujrahs, and the shine of Sultan Wais Baba.

There is another village called Badshah kilai, containing 400 houses of Gudazai, under Noor khan and Zattullah khan. I have heard, as I said before, from old and intelligent men of Bunher, that two of the three tribes of Eesafzais inhabit Bunher vizult, Maleezais, and Mandeezais.

The Maleezais are again subdivided into the following five gurohs, Gudazais, Salarzais, Ashezais. The tribe of Top Darrah, and Panch-paees.

The Mandezais are also again subdivided into the two gurohs of Doulatzais and Noorzais. The whole pergunnah of Salarzais, containing twenty-four hujrahs, on each of which matchlocks, horsemen, and lands are distributed. The chiefs are Kachkol khan, Baba khan and Alam khan.

The whole purgunnah of Gudazais, contains sixteen hujrahs.

That of Ashezais twenty-one hujrahs.

That of Top Darrah eighteen hujrahs, and that of Panchpaees twenty-two hujrahs.

The whole of the Maleezais have 101 hujrahs. The Doulatzai, Maleezais have thirty-one hujrahs, and the Noorzais forty-two hujrahs, making in all seventy-three.

The Gudazais are divided into four Tappahs. Husen khel to the east have four hujrahs, under Sarwar khan.

Husan khel to the north, have four hujrahs, under Kachkol khan and Baba khan and Alum khan. Aleesher khels, to the south, have four hujrahs, under Nouroz khan, Alee khan and Ahmad Shah Megan.

Ibrahim khels, to the north-west, have four hujrahs, under Deewan Shah.

Between the Aleesher khels and Ibrahim khels, there is a distance of five kos.

The Salarzai Maleezais have seven villages to the west.

Hujrai contains three hujrahs, under Shahbaz khan.

Seegaren contains four hujrahs, under Abdulla khan.

Kingargalee contains four hujrahs, under Azam khan.

Seiz contains four hujrahs.

Bazangai contains four hujrahs, under Azam khan; Johar and Bam-pookhah, contain each four hujrahs, under Sargandai and Hijran. They are enemies of the Gudazais.

The Ashezai Maleezais, have three towns. Heelai contains seven hujrahs, under Fattalee khan.

Aughapoor contains seven hujrahs, under Daum Shah.

Torahsak contains seven hujrahs, under Afzal khan; each of these towns has forty or fifty shops, frequented by Putwad Puklee, and Chuch merchants.

Top Darrah has four villages; two of them have three hujrahs each, and the other two four each, under Alam khan.

The Panchpaees have five villages; three of them four hujrahs each, and two of them five each, under Taoos khan and Ghazee khan.

The Doulatzai Mandezeais have three villages; Dagar has two hujrahs, under Shah Dqula. Six kos to the south, there is a village called Bandedzai, having five hujrahs, under Fattah khan.

Six kos to the east, there is a village called Thil bandai, having eight hujrahs, under Nizam khan.

The Noorzai Mandezeais, have ten villages, each of four hujrahs, to the north-west, under the Eelem hills; their drinking water being from the Burindoo river, and from springs, under hills to the south.

Their chiefs are Mansoor khan, Ahmad khan and Azad khan. The names of the villages are Kharappa, Reega, Noukalee, Sadacheena, Deraï, Barkalaipanchpao, Deegda, Paltoreen, Kohkandee, two villages, upper and lower.

Another tribe, the Moleezais, are towards the east, at the entrance of a valley, at a distance of nine kos. They have two large villages, Kalpanee and Talpanee, having each four hujrahs, under Arab Shah Bunherwal. The Khattak merchants, bring salt, oil, and cloth, laden on bullocks; and take back, ghee, honey and rice. The Maliks levy from them as black mail, 1/24th rupee per load.

Bunher is surrounded or bounded in all directions by hills, that have separate names.

To the east, is the Handoo hill, having an ascent of three kos, wooded with Jalyhoozah, Archah, Zaitoon and Baloot trees, and frequented by monkeys, bears, hyænas, wolves, the hill Gongawaz, and wild goats and parrots, sharaks, and the seven colored bird, the kabk, the sisee.

Nothing is known of mines in this hill. Scanty streams are fed from the melting of the snows on these hills in the winter, and grazing is found on it for cattle and flocks in rich abundance.

This hill is within the jurisdiction of Ahmad Shah, and Deewan Shah, Alee, Sher khels. The road over this hill is not practicable for camels, it is difficult even for horsemen. The inhabitants on its skirts do not live in forts, but they are rich in flocks and herds.

To the south there is a hill and a Pass called Mah Bunher, thickly populated, and having mines of zâk and sulphur.

To the south are also the Malandarai hills and Ghudoo hills, through which there is a road taken by people from Samah to Bunher.

To the west there is a hill called Jafar, and another called Koh Kanda, abounding with masonry, remains of Cafer buildings, the ascent and descent of which is eight kos. It has no mines, is very

difficult of ascent, and snow falls on it. It is within the jurisdiction of *Malik Buland khan, Sherzai*; the alchemist's plant is found in it.

There is a hill to the north, called *Eelam*, or rather two, one called *Loee Eelum*, and the other *Oodookai Eelum*, having an ascent of four kos; snow falls on it to a great extent. It is in the jurisdiction of *Shahbaz khan, Azam khan, and Abdulla khan, Salarzais, and Ahmad Shah Myan*. In the Pass to the north is the splendid shrine of *Sayud Meer Alee, Turmezai*, known as *Peer Baba*. From the *Handoo* to the *Jafar hills* is twenty-nine kos, and from the *Malandarai* to the *Eelum hills* is twenty-five kos. The *Burindoo* river runs within these boundaries. It comes from the south by the village of *Sugaren*, which is in a valley and winding, and fertilizing the land on its banks goes east by the villages of *Parbha and Jafarzai and Babda*, and over the plain of *Bakda and Marhad*, and falls into the *Abaseen*.

After gaining this information I left *Bunher* for *Swat*.

The whole cultivation of *Bunher* may be stated at 50,000 jarebs *lalmee*, and 35,000 jarebs *abee*. It may be said capable of furnishing 60,000 foot matchlockmen and 5,000 horse, and to contain 111 villages, large and small.

From *Bunher* to *Swat*, there are three roads. One over the *Jwaharai hills* to the south, which are very lofty, having an ascent of seven kos, and snow always on its summit. It is not a camel or horse road, and foot-passengers even meet with difficulties. On the *Bunher* side of the hill there is a village called *Poolhanad*, containing 120 houses of *Gudazais*, under *Myán Sayud, Amad Shah*, a descendant of *Myán Sayud, Munawar Shah*, alias *Peer Baba*; and on the other, or *Swat* side, to the north-east, are two villages, called *Sipal Banbai and Mingoda*. This road bears north-east from *Peer Baba*. Their chief is *Zaidulla khan, Baezai Swatee*; there are 700 houses. The distance from *Peer Baba* to *Sipal Bandai* is seventeen kos.

The second road is over the *Karakar hill* to the north-west. On the *Bunher* side is the village of *Sagaden*, containing 700 houses, under *Najaf khan, Kasam khan and Nazeer khan*. The ascent and descent of this hill is nine kos.

On the other side is a village called *Nawahgai*, and two kos further on in *Swat* is the village of *Barah Kot*, inhabited by *Babazais*, under *Ghazan khan, son of Mahmud Jeev khan*. This road is passable

for horsemen and laden bullocks, but on account of the robbers, guards are required. Many kinds of trees and wild animals are to be met with in these hills.

The third road is over the Kaleel hills to the south-east, and winding. There is a village on the Bunher side, called Garkand, containing 600 houses of Salarzais, under Darah Shah. The ascent and descent is five kos. The road is difficult, and little frequented. The hills are plentifully wooded. On the other side are the villages of Janbel and Kokarai, each containing 100 houses, under Zafar khan Babazai. From Gohkanda to Kokorai is eight kos.

I went by the village of Shkha kot. Of the tribes of Maleezais, Mandeezais and Akozais, the two former of which inhabit Bunher, and the latter Swat. The Akozais are divided into three tribes: Rarenzai, Baboozai, and Khwazozai.

The Rarenzais have 12,000 matchlock men, and 3,500 jarebs lalmee, and 1,500 jarebs ábee, and fifty-two villages, under Anayatulla khan, son of Abdulla khan, who himself has two villages, one on this side, to the west, towards Hashtnagar, and the other on the other side of the Mullah kand, called Allahohand, where he resides, to the east in lower Swat called Aswat.

Swat is divided into Sar Swat, Bar Swat and Deer, chiefly under Anayatulla khan, and a small part, under Zaidulla khan Babozai, and Ghazan khan Khwazozai.

Some of the villages under Anayatulla khan, are as follows:

Those towards the Mullah kand are fourteen in number, Vizut, Narai, Obo, consisting of 300 houses; Doobandai to the west, containing 400 houses, half a kos from Mulahkand; Bhorek to the west, one kos, containing 300 houses; Iskhakot to the west, containing 1,500 houses; Gadai, two kos, containing 400 houses. Heeran kot, containing 500 houses to the north-west, one and a half kos, having 1000 jarebs of lalmee; Dargai, two and half kos to the north, contains 1,500 houses; Kharkai, two kos to the north-west, contains 700 houses; Dareer, two kos to the north, contains 400 houses; Sanez, two kos to the north-west, contains 400 houses; Paroo, one and a half kos to the west, contains 300 houses; Kaldarah, two kos to the north, contains 500 houses; Kadam khel, one kos to the east, contains

200 houses ; Baghdarah, one kos to the north, under the Malahkand, contains 150 houses.

Between Swat Proper and this Swat, is a hill over which there is a Pass ; the name of the hill is Malah kand.

From Skha kot to the north-east, five kos, is a road partly through a defile called Jambar, through which there always blows a violent wind ; there are two mounds in the defile, called after Adam and Darkhanai, because these lovers met there.

There is another unfinished road over the hill to the north, said to have been commenced of old by a monarch, named Kumran Shah, who intended by it to lead an army to subdue Swat, but died before it was finished, and the Swatees destroyed much of his work, and opened the road by the defile : traces of this road over the Malah kand are still visible.

The merchants of Hashtnagar, the Khatah country, the Duabah, and Samah, bringing Karbas cloth, cotton and salt, on camels and bullocks, pass into Swat via Skhat kot, Dargai and Jambar, by the Malahkand Kotal.

The following duties and black mail are levied,

On a load of Salt,	..	..	..	3 shahees, (1/12th rupee).
Ditto ditto Cotton,	..	..	..	5 do.
Ditto ditto Ghee,..	..	..	..	5 do.
Ditto ditto Cloths,	..	.	..	6 do.

by Anayatulla khan, for which he protects merchants.

The whole country of the Rarenzais, is under Anayatulla khan.

After passing the Malahkand, and entering Swat itself, the following Rarenzai villages, under Anayatulla khan, are met :

Shahar, of 200 houses ; Dahrai, 200 houses ; Jolagram, 300 houses ; Matkaran, 200 houses ; Hissar, 200 houses ; Tootakan, 200 houses ; Shaibetai, 400 houses ; Batkhelah, 1000 houses ; Nonkalai, 300 houses ; Amankot, 300 houses ; Allahdant, 2000 houses ; Bandagai, 100 houses. Besides these there are many smaller villages, having twenty and thirty houses each.

The villages that I visited myself, shall be fully described.

Anayatulla khan has married the sister of Zaidulla khan, and thus cemented a friendship. By her he has several sons. He is at enmity with Ghazan khan of Deer, and Meer khan of Bajour.

There is another tribe in Swat to the East, called Baboozai, who have seventy villages and 18,000 matchlock men, (foot) under Zaidulla khan, the son of Hasan Alee khan, and Mazulla khan, the son of Jamand khan, a Khankhel. This tribe, especially to the south, is very unruly. Their lands are on the skirt of hills, and in valleys and on streams, some lalmee and some abee.

The river Sandai runs through the whole of Swat, from the boundary of the Rarenzais to that of the Banzais, is one and a half kos. The villages are: Bakhta, Tharan, Jalalah, Nawahgai, Natmeda, Dagai, Satmeda, Badeekot, Ashteekot, Amboohah, Garhatai, Panjgram, Karatai, Namee kalai, Bar kalai, Haibat gram, Koth, Kotagai, Mingrawad, Sangootah, Manglawar, Charbagh, Julaibagh, Teekdarai, Khoonah kateelah, Saidoo, three villages, Singuradad, Aleegai Sokat, Malhar, Kamharkalai bagh, Jooleezai, Alamganj, Matwarairi, Khwazah khel, Mirgai khel, Barah khel, Panjeeegram, Hoodeegram, Jinkai khel, Nipkai khel, and Baloogram.

There are other smaller villages in the hilly valleys.

Zaiddullah khan pays in ready money, 200 Suwars and 500 foot.

The third tribe of Swat are the Khwazozais, under Ghazan khan the son of Kasam khan, the son of Mulla Ilyas, whose authority over his clan of Deer is great.

They are estimated at 38,000 matchlockmen. In the valley of Swat there are fifty-four villages, and in the valley of Deer sixty-two villages.

There are two rivers in the Pergannah of Ghazan khan; the Swat river, flowing from south to north, called Sandai, and the Deer river. The villages are mostly in hilly valleys, and few in plains. There are high hills on all sides. The cultivation consists of 38,000 jarebs lalmee.

They are all under Ghazan khan, who in every village has posted a man of his own as Malik, to hear the complaints of the ryots. He takes $\frac{1}{5}$ of the produce, or cultivates $\frac{1}{5}$ of the lands. There are four small forts, each having 50 or 80 houses, and villages containing

100 and 200 houses, populated on the hills. The villages of the plains have each from 500 to 1000 houses.

Samah and Khatah merchants bring salt, oil, cotton and cloth, and take away ghee, honey, rice and wheat, on bullocks and mules.

The people that he appoints as Hakims and Maliks of villages, have portions of land allotted to them in lieu of pay.

Ghazan khan himself resides in the fort of Deer, and has 140 horse and 400 foot constantly about his person, whom he pays in ready money. The following are the names of the hills in Ghazan khan's country,

First Maujah to the south, well wooded, having an ascent of four kos, and the same descent. There are plenty amlook and other trees; snow lies on the summit throughout the year. The road from Bar Swat to Deer leads over it, which is impassable to camels and horsemen, footmen even finding difficulties. Monkeys, apes, bears and tigers abound, and are to be feared, so are the thieves infesting it; such are not to be heard of in the jurisdiction of Ghazan khan.

The second hill is the Barawal to the west, having walnut as well as other trees. The ascent and descent are each five kos; much snow falls. There is an iron mine.

The third hill is that of Deer, to the north, very high, having an ascent and descent each of seven kos; snow always remains on it throughout the year.

The fourth hill is called Kumbad, to the east, the ascent is seven, and descent six kos. There is an iron mine, the metal of which the inhabitants extract. The road to Bajour passes this hill, frequented by Bujour, Deer, and Kashkar merchants. Ghazan khan is on friendly terms with Shah Katal of Kashkar, and Meer Alam of Bajour, and is at enmity with Zaidulla khan, Babozai Swatee, and Anayatulla khan, Rarenzai.

There are a number of hills besides these. The Khwazozais are divided in Maleezais, Shameezai Nurlee khels, Shameezais Pinkee khels.

The Shameezais to the west, muster 5,000 matchlock men, and have 3,000 jarebs of cultivation, under Buland khan, and Sara'ee, and Sayud Azam khan. The names of the villages are,

Barangola, contains four hujrahs, under Nahit khan and Buland khan.

Badawan, under Ojee khan, Ghawaz khan, and Sayud Azam khan, contains four hujrahs.

Chack Darrah, under Akal khan, and Dilawar khan, contains four hujrahs.

Sih Sadah, under Noor Alee khan, contains four hujrahs.

Ooch, under Ghulam Muhaiyadeen khan, and Maksood khan, contains four hujrahs.

Katyaree, under Raman Shah khan, contains five hujrahs.

Shewah, contains six hujrahs, under Munawisar khan.

Palah Mandai, under Hoorah khan, contains four hujrahs.

Neegwalai, under Ahmad khan, contains three hujrahs.

Kajookam, under Fazal khan, contains four hujrahs.

Damghar, under Ghafar khan, contains four hujrahs.

Seen Sarai, under Aman Shah khan, contains four hujrahs.

Gadai, under Nyamutulla khan, contains three hujrahs.

Doorgai contains four hujrahs, under Assalla khan.

Chalgar, under Muazzam khan, contains four hujrahs.

Other villages are in the defiles, and on the hills, containing ten or twenty houses each. The inhabitants are owners of herds and flocks.

The Shameezais muster 7000 matchlock men, and have 11,000 jarebs; Beshah khan is their chief, and Kamal khan, Muazzam khan, Kahur khan, and Arsulla khan. The villages extending for fifteen kos, are the following,

Shilpum, contains four hujrahs, under Kahur khan.

Shakur Darrah, contains five hujrahs, under Arsulla khan.

Baba khel, under Muazzam khan, contains six hujrahs.

Teensat, under Padshah khan, contains four hujrahs.

Khadhadsha, contains four hujrahs, under Anwar khan.

Baidarah, contains five hujrahs, under Kan khan.

Dursha khel, contains four hujrahs under Kamal khan.

Kalat, the principal village of the Shameezais, contains fourteen hujrahs, under Beshah khan.

Sekhras, under Kamal khan, four hujrahs.

Doda, contains four hujrahs, under Ahmad khan.

Dursha khel has four hujrahs, under Raham khan.

The Nepkee khels, called Naipee khels, Mirlee khels, extend twelve kos to the north. They muster 9,000 matchlockmen, and have 15,000 jarebs.

Jahkandara has four hujrahs, under Painsa khan.

Kanjoor contains three hujrahs, under Ourang khan and Fazal Shah, and Roshan khan.

Neem galai, two kos to the south, two hujrahs, under Jamad khan.

Dehli, one kos to the south, two hujrahs, under Arab Shah.

Barah Bunda, one and half kos to the south, contains four hujrahs, under Roshan khan, son of Arsalla khan, Neepkee khel.

Koozamandai, contains four hujrahs, under Malah Shah, Meeran Shah and Arab Shah, one kos distant.

Damghar contains three hujrahs, at one kos to the south-west, in the plain from Barah Banda, under Rahmat Shah.

Dumgram contains two hujrahs, at one and a half kos, under Mahammad Zaman khan.

Koojkanjoo, one and a half kos to the south of the road in the plain, on the bank of the Swat river, two hujrahs.

Barkanjoo contains two hujrahs, under Nooran Shah and Shekh Gulpurust.

There is a large village, ten kos from Kanjoo, having five hujrahs, under Gulistan khan, Painsa khan, and Shah Beg khan.

Two kos, on the skirts of the hill to the west, is a village called Seenai, containing three hujrahs, under Yoosaf khan, son of Umar khan.

Further to the north, is a village called Sar Sodai, two kos from Aleegram, containing four hujrahs, under Jadullah khan, and Faiz-talab khan, Myan Ahmad Noor, Speen Myan Abdullah khan, and Awal khan, in the plain. Their drinking water is from a stream that comes from the Manjuh hills, to the north; the whole of the lands of Swat depend on the rain.

There is a village, Mandee, where merchants exchange their salt, cloths, and oil, and cotton, for rice and wheat. The copper coin current are Mansoorie pais or Mansoor khanees, and they prefer old round Ghunda rupees, indeed no others are current. There are no Hindoo shops throughout the country of the Pingee khels, the only merchants being Paranchas and Mullas, who command great credit; the people

are very unruly, but are held in some check by Ghazan khan of Deer.

Three kos to the north is the village of Toot Banda, under the Manjah hills, having three hujrahs, under Maddat khan.

To the north-east is another village, called Manjah, under the hill of that name, containing 127 houses, under Jalat Khan.

To the north, within the defile of the hill of Manjah, one and half kos, (the road over the hill leads to Deer) is the village of Kalakee, containing seventy houses, under Myan Ahmad Gul and Speen Myan; walnuts and Amlook trees are plentiful. I went by this road myself to Deer.

The Mooleezai Khwazozais inhabit the hill defile towards Deer.

Passing the Manjah hill there is the village of Tangee, consisting of two hujrahs, under Shad khan, under the hill to the west of the road.

Two kos further is the village of Kandareen, consisting of three hujrahs, under Mazroob Shah khan, Saidoo khan and Marghoob khan. A stream flows below the village, having its rise in the Manjah hills, of ten mill strength, and empties itself into the river of Deer. The people of the country live chiefly on rice.

Two kos further, in a defile, is the village of Chaghareen, consisting of two hujrahs.

One kos further is the village of Shakandair, consisting of two hujrahs, and containing 100 houses, under Noor Shas khan.

One kos further is the village of Ateetai, containing 100 houses, and consisting of one and a half hujrahs, under Sahab Shah khan.

Further, beyond the stream to the south of the road one kos, is the village of Razagam, consisting of two hujrahs, and containing 300 houses, under Kutub Shah khan.

After leaving the defile of the Manjah hill, is the village of Tor-Sang, two kos to the north on an eminence, containing 700 houses. It is on a table land, the ascent to which is half kos.

The road to Deer passes by it to the north. The Maliks are Buland khan, Alee khan, and Saadat khan. Under the village to the west, flows the river of Deer, beyond which to the west, are very high mountains. There are a very few villages across the river, not so on this side, as far as Deer.

Seven kos to the north, from Tor-song, is the village of Jughabunj, having 200 houses, and one and a half hujrahs, under Buland khan and Mahammad khan, and Mulla Sayad Alee.

Four kos further to the north is the village of Bebiyoor, having 200 houses and one and a half hujrahs, under Ahmad khan.

Three kos further, is the village of Dardarah, having eighty houses, under Ameer khan and Buland khan, on an eminence to the east of the road to Deer.

Two kos further is the village of Hindookais, having eighty houses, under Afzal khan.

Three kos further is the village of Benimazee, having 100 houses. On the road there is a stream flowing from the hills to the east, and falling to the west into the river of Deer, over which is a wooden bridge, twenty-three kadamns long.

On the bank of the stream to the east, is the village of Katalai, having fifty houses, and on the opposite bank is the village of Kadeekat, to the west.

Three kos further from this to the north, is the village of Kotalai. These villages are under Hasan Alee khan, a relation of Ghazan khan, chief of Deer, from whom he has them in jagire.

Two kos further is the village of Tangai, having 50 houses, under Ghulam Kadan khan.

Three kos further is the village of Hindookar, having 80 houses, under a man of Ghazan Khan.

Three kos further is the village of Jablook, on an eminence to the east, having 90 houses, under Azeemulla khan.

Three kos further to the north is the village of Kotakai, having 70 houses.

Three kos further to the north-east is the town and fort of Deer, under Ghazan khan, son of Karam khan, son of Mulla Ilyas, a Barah khel, Maleezai, Khwazozai, Akozai, Eesafzai, situated on a high table-land, 100 jarebs of which is cultivated.

The fort of Deer, which is situated on the table-land, is of an oblong shape, and has two gates that a horseman can ride through, one to the north facing the Kashkar road, and the other to the south facing Swat and Bunher. The walls of the fort are 12 zirahs high, 400 long, and 300 broad, having six bastions, five along the walls, and

one at the Harem Sarai of Ghazan khan. Within the south gate of the fort to the west there is a large mosk, where lessons are given by the Imam of the mosk, Kazee Abdurahman Akhund; and further beyond the mosk entrance to the west, is the residence of Ghazan khan. There are sixteen shops of Hindoos, five of which are grain-sellers, two druggists, and two cloth-sellers; and seven of Musulmans, four of which are goldsmiths, and three dyers: there are three blacksmiths' shops, and two carpenters. There are 220 houses, and an armoury of 300 matchlocks, and fifty Jazacers, each two and a half guz long.

Ghazan khan has seven sons: Rahmatulla khan, aged 12 years; Jahandad khan, ditto 9; Hameedulla khan, ditto 7; Habeebulla khan, ditto 7; Sultan Mahammad khan, ditto 5; Azeezulla khan, ditto 3; and Azeemulla khan, ditto 1 year.

He has four wives and many slave girls, and may be forty years of age; of a middling stature, fair complexion, and black hair. He is neither extravagant nor stingy, and is fond of hunting. He is on friendly terms with Meer Alam khan, and with Shah Katal of Kashkar, and at enmity with the Siahposh Cafers.

Deer is surrounded by mountains, on which snow lies all the year round. The country is very cold, and the color of the inhabitants is sallow from the disease of the spleen that they all have. They live chiefly on rice boiled soft, well mixed with ghee: wheaten bread they eat as fruit, (a treat). Their fires are lighted night and day on account of the cold. The ground is damp and swampy, therefore the inhabitants board their floors.

Fir, Pine, Walnut, and Amlook trees are exceedingly plentiful. The gates of the fort are left open.

The manager of Ghazan khan, is one of his slaves, by name Abdul Kadar; and his confidential adviser is Kazee Mulla Abdu Rahman. Another of his slaves, by name Mahammad khan, is the fort Katwal. He has always in attendance 200 foot and 40 horse. He appoints others to districts and villages, from which they draw their own pay.

There are two roads from Deer to Bajour: one winding through defiles to the south-east, by the side of the river, towards the Kunateer road; the other over the Barawal hills, on the south of which is Bajour. It has an ascent of six kos, and a descent of three. It is

well wooded, and affords plentiful pasturage to the inhabitants. It is crowned with perpetual snow, and an iron mine is said to exist in it. It is not passable for camels, indeed the inhabitants know not the animal by sight. On the northern side of the hill is Deer; and on the southern side, in the Darrah of Jandawal, is the village of Akhund Mullah Timmur khan.

From Deer to the north-west are mountains inhabited by Neemchah Musulmans, in which the Musk-deer abound, the hunting of which affords occupation for numbers. A quantity of honey is also produced.

Below the fort of Deer to the east, flows the river which comes from Kashkar to the north, and flows to the south. In it Otters are very abundant, which the inhabitants catch for the sake of their skins to make Posteen's, or skin cloaks. These skins, with musk-bags, honey, ghee and silk, are articles of export.

Merchants from Kashkar and the Kohistan, bring Kashkar "Shalakees," and Chapkans (woollen fabrics), and in exchange take away grain.

The merchants from the Eesafzai country and Peshawar bring oil, cloth, cotton, sugar and spices, and take away musk-bags (Nafa), otter (Saglahoo) skins, honey, ghee, silk, and Kashkar "Shalakees."

The road from Swat to Deer is not practicable for camels, horsemen pass along the river with difficulty, merchants carry their goods on mules, bullocks, and men. The inhabitants know not what elephants or camels are.*

I will give specimens of the dialects spoken by the Neemchah Musulmans of the Kohistan, and by the people of Kashkar and the Baroohee (?) (Purmoolee)—(Furmulee).

* A story is told illustrative of the gross ignorance of the primitive Affghans. A camel that had strayed from an encampment of merchants, found its way into a Barak-zai khel, (they tell the story themselves,) where one had never been seen. The whole Khel was struck with awe, and were at a loss, all but the village Mulla, who, although as ignorant as his neighbours, determined not to appear so, and therefore boldly suggested, or rather affirmed, that it was the Almighty himself, which they all believed until a young one also made its appearance; and they enquired of the Akhund how the first one could be God as he had no fellow. The Akhund, not taken aback, boldly rebuked them thus: "Why, you fools! the second is the Prophet to be sure." This story I have heard half a dozen times from the blasphemy-dreading, holy-war-making Affghans!

After visiting Deer I returned by the road I came to Jaghayanj, twelve kos, whence to the village of Chakhai is five kos, and thence two kos to the east Atnar Darah. From this to the village of Tormany is three kos to the west, in a defile. In the road is a river which comes from Deer, and passing through defiles joins the Bajour river, which falls into the Swat river, which again falls into the Kunar and Cabool river, which finally falls into the Abaseen, or Attock.

Three kos from Tormang to the east, is a valley in which is the village of Khaeel, having three hujrahs and 600 houses, and close by is a square fort having four towers, containing thirty houses, under Irah khan. There are houses besides without the fort, and 600 jarebs of cultivation on the bank of the river.

From Bajour as far as Khaeel, there is a gun-road, but not so into Deer.

From the above place, one kos, there is a village on an eminence, containing 160 houses and one hujrah called Manjai, under Shadee khan. One kos further to the west there is a large fort containing 200 houses, and a large village containing 1000 houses, under Muckum khan and Shadee khan, called Kilah-i-Shadee khan. Half a kos further is the large village of Kanateer, containing 2000 houses and 40 shops and 16 hujrahs. It is a mart for merchandize, under Naseem khan and Umra khan, each of them have 40 horse and 2000 matchlockmen. The boundaries of Bajour Swat and Deer meet here. The place is under Ghazan khan.

Three kos to the west is the village of Dedai, having 160 houses, under Faiztalab khan.

Here two roads separate, One to the south-east, through the defile of Katgallah leads to Swat.

The other to the north leads over hills to Bajour via the village of Karhadah. Thus from Derai comes the village of Khemna, containing 200 houses, under Abdulla khan, Farkaride, in Bajour, the road is through a narrow defile which is passable for guns.

Five kos further to the south in Bajour on a plain, is the village of Kadhadah, and on the road there is a square fort built, containing 120 houses, under Faizulla khan.

To the south are hills inhabited by Utman khels, amounting to 10,000 matchlockmen, an unruly set, independent of Meer Alam

khan, of Bajour, and of Ghazan khan of Deer, and of every one else. They are noted for bravery, and live in houses and caves on the hill sides. These hills are partly in Bajour and partly in Swat, and are full of remains of Cafer buildings, from which the Utman khels extract copper coins and utensils, and often gold, and sell them in Bajour. The road over these hills is very difficult for horsemen ; merchants cross with guards with fear. Meer Alam khan tries to conciliate them, as he fears them.

He has more than once taken a force against them, which they have as often defeated. The chiefs of the Utman khel are Khad, Umra, Narai, Bendil, Dilban, and Mardan. They bring honey, oxen, sheep and ghee to Bajour for sale, and purchase cloth and salt to take home.

They sometimes propose to take service, and get jagires and lands allotted for their support, but as soon as they reap their harvest they take to plundering their neighbours, and then to their hills, and defy Meer Alum khan. Every one is chief of his own land, and is under no control. Wheat is much cultivated in these hills by means of springs. The hills are well wooded, and game of every kind is abundant.

From the above village of Kadhadah one road leads to the east to Swat, thus,

Two kos from Kadhadah in the plain, is the village of Gulderee, having 400 houses, under Mulla Daraz Akhunzadah. Thence the Shekah road leads to the east.

Two kos further is the village of Chinah, having seventy houses, beneath which flows the river of Bajour. The land has capabilities, but the tyranny of Meer Alam khan has laid it waste. Guldad khan, a man of Meer Alam khan's, is their immediate ruler.

One kos further, on an eminence to the east of the road, is the village of Yakburj, having eighty houses, under Mahammed Ameer khan, over a bad narrow stony road, very difficult, for camels.

To the south-west of the road is the junction of the Deer and Bajour rivers, whence they run in one stream to Swat ; the road is in a narrow defile called Shikah.

Six kos further is the village of Shamsee khan, on the skirt of a hill to the south of the road, having 850 houses and ten shops. The

cultivation is chiefly in the plain to the north, lalmee. The chiefs are Afzal khan and Misree khan, it is in Swat.

One kos further to the east, on the road, is a large square fort, containing 200 houses, where Misree khan, a man of Ghazan khan, is stationed to collect duties from merchants trading between Bajour and Swat, bringing from Swat salt and oil laden on bullocks. From each load, whatever it may be, 3 shais and 2 paisa is levied, which in the year amounts to 7,000 rupees.

Two kos further to the east is the village of Amlook Darrah, to the south of the road, containing 400 houses, under Padshah khan.

On the hill to the south there are six towers of a large size, and other marks of buildings.

On eminences and in valleys there are very many villages in a good state of repair, having no inhabitants, but difficult of access. The chiefs are Anayatulla khan and Khairulla khan; copper and gold coins are found in these deserted buildings.

Two kos further is the village of Nasapa, containing 100 houses, and many remains of ancient buildings, which no doubt composed towns.

Two kos further to the south is the village of Gumbat, containing 200 houses, behind which on the hill skirt is a very large tower of the times of the Cafers, of excellent construction; but the villagers have pulled it down in parts to make their houses of its bricks and stones.

It is hollow, and has three doorways, the entrances through which are winding. It is said that below this dome the treasures of the ancient kings lie buried.

I visited the place, and searched in vain for an inscription. It is situated in the boundary of the Khwazozais, under Ghazan khan.

Two kos further is the village of Katgalah, containing 100 houses, the road is difficult for camels. Here also on the skirt of the hill, ancient buildings are numerous, like deserted towns. It is in Swat, under Ghazan khan.

One and a half kos further is the village of Talash, on the road at the entrance of a defile, having 200 houses.

Passing the defile a plain is entered, having 500 jarebs of lalmee cultivation, and 100 of abce (rice).

Two kos further are two villages, called Chounnee, containing each 400 houses, under Sayad Aman khan, Swatee, a man of Ghazan khan, the inhabitants a lawless set, and no one can pass the plain without guards, which is called the Dasht of the Shamseezais.

Three kos further to the north, is the village of Shewah, having 800 houses and twenty shops, a mart for merchandize, under Ghazan khan, being on the mercantile route from Bajour to Swat, about 2000 jarebs of lalmee cultivation.

Four kos further to the south east, on the banks of the Landai Swat, there is the large village of Chakdarrah, having 1,200 houses, mostly merchants, included in Swat. Shamseezais by tribe, under Ghazan khan, six hujrahs.

Below the village to the west, is a ford across the river, (no boats or rafts.)

Beyond the river is the boundary of Anayettoola khan, Rarenzai, and the village of Alladaud, in which he resides; on the other side are the Shamseezai Khwazozais, under Ghazan khan. This is the boundary.

There is another road to Bajour from Kurhadab, six kos is the village of Munda, having 2000 houses and 100 shops, under Mahammad Ameer khan, Kochai, brother of Meer Alam khan.

The whole pergunnah of Bajour contains 1,25,000 jarebs, and its revenue amounts to 2,60,000 rupees, in ready money and kind collected on the seed (Kalang), of which Meer Alam khan receives 2,000,000 with his brothers, 40,000 rupees is received by Ameer khan, of Nawazai, an enemy of Meer Alam's, and 20,000 rupees is received by Ghafar khan, the son of Haiyat khan, the chief of Jandawal and Barawal, who is also an enemy of Meer Alam khan's.

The following are the boundaries of Bajour. To the north in the direction of Deer, the Jundawal and Barawal hills; to the south (twenty-five kos length,) the Darrah of Nawazai, and the pergunnah of Kunar. To the east the Darrah of Badwa and the hills of Cuner; to the west (twenty kos breadth,) Pashit and the Darrah of Baboo Karah.

The chief within these boundaries is Meer Alam khan, the son of Allaiyan khan, Salarzai Tarkadeir.

He has thirteen guns, (seven iron taken from Ghafar khan, son of Haiyat khan, and six of copper, ? of his own.) forty Shaheens, 700 large Jazaeers, 8,000 foot, 2,000 horse, six pairs of state drums and

twelve state horns, (Karna,) and standards; in fact he keeps up a regal state. Besides he has Jagiredars.

His whole yearly expences amount to 1,12,000 public, and 8,000 private (stable, table and wardrobe,) ; 50,000 rupees he pays as revenue whenever any one on the part of the king is sent strong enough to enforce the payment, the remaining revenue enters his treasury.

He has absolute authority over his people, even extending to their wives and daughters, and no one demurs or objects to his disposing of their sisters and daughters.

His friends are Ghazan khan of Deer, and Anaiyatalla khan of Swat ; and his enemies are Ameer khan of Nawazai, and Ghafar khan of the Darrah of Jandawal, these he has partially subdued, and possessed himself of parts of their territories.

He is also on friendly terms with Sardar Sultan Mahammad khan, Barakzai, of Peshawar.

Six of his guns are alone mounted on carriages.

The following are the principal places of Bajour :—

Gumbhad, in a valley to the east, under Myan Sahib, furnishing 300 matchlockmen, revenue 3,000 rupees in money and kind. There is an iron mine in the hills, they were formerly under Ghafar khan, now under Meer Alam khan. They collect the iron from the sand of river beds. The pay of Myan Sahib is 800 rupees.

Jundawal is a valley of the Barawal hills, extending to Deer to the north, under Sifat khan, 4,000 matchlockmen, revenue 5,000 rupees. There is an iron mine which is worked. The pay of Sifat khan is 1,000 rupees.

There is another village in the valley of Maidan, which commences in the Kashkar hills to the north, itself bearing east. The inhabitants are Purmoolee, (Barhooee ?) under Meer Aman khan, 2,000 matchlockmen. Revenue 3,500 rupees, pay of the chief 400 rupees. There is an iron mine in the Maidan valley, and a river running from north to south. Kanbat, consisting of 9,000 houses with its dependent hamlets, 5,000 matchlockmen. Iron is found in the neighbouring hills which border on Kashkar ; name of the chief, Meer Aman khan, son of Meer Alam khan. Revenue 10,000 rupees in money and kind. His

jaghire, Maiyar, rent free, the estate of Myan Shekh Umar, of Chamkancee. Revenue 7,000 rupees under the Myan's daughter. It contains 3,000 houses and forty shops. It is resorted to by merchants, who bring from Kashhar, silk shalakees and chughas, and take back salt, cloth and cotton. The inhabitants were ryots of Ghafar khan, they are now of Meer Alam khan.

From Maiyar, northwards to Zar Mandoo, there are four forts of Shekh khels, under Doola, brother of the late Mujabid khan, 2,000 matchlockmen and 4,500 houses. Their custom is that every one who holds three papatahs of land must furnish a matchlockman to the ruler. A papatah takes three kharwars of seed.

Mundah, in jagire to Ameer Mahommad khan, alias Kochai, brother of Meer Alam khan, a brave soldier, having command of 12,000 matchlocks, (footmen,) and 100 horse. He sometimes rebels against Meer Alam khan.

There is another village in a valley called by some Shikah, having eight forts, by tribe Utman khels, who take service under no chief, nor were they ever. When Meer Alam khan marches against them, they declare themselves subjects, and Meer Alam contents himself with their nominal submission, and retires.

There are four forts to the west, called Wadah Banda, in jagire to Juma khan, brother of Meer Alam khan, who has command of 6,000 matchlockmen, and forty sowars, and is night and day employed in hostilities with the Utman khels; revenue 7,000 rupees, his jagire.

The Shahar, or capital of Bajour, is the residence of Meer Alam khan himself. It contains 1,000 houses and eighty shops, and is a mart for merchandize; revenue 9,000 rupees.

In the hills to the west, in the valley of Rodbar, are the tribe of Mahmoodees, who muster 10,000 matchlockmen, they have no Maliks; revenue 4,000 rupees. If the ruler is strong they pay, otherwise not.

To the north is the village of Pishurt, in the valley of Baba Karah, in jagire to Paindah khan, brother of Meer Alum, 4,000 matchlockmen; revenue 7,000 rupees; tribe Salurzai Ibraheem khel.

There is another village to the west, called Chahar Sang, furnishing 3000 matchlockmen, under Meer Alam khan.

There is another village called Kotakee, 3,000 matchlockmen (foot) and 1000 horse, in jagire to Meer Aman khan, son of Meer Alam khan revenue 2000 rupees.

Another village is Nawahzai, the residence of Ameer khan, the enemy of Meer Alam khan. There is also a fort on an eminence, stony and difficult; there is a spring in it. The fort has eight towers.

There are houses right and left, under the fort in the valleys east and west of the fort, the road through them running north and south. The garrison of the fort consists of 500 footmen and 400 sowars. Jazaeers are mounted all round the fort walls, as are two guns. He has 2,000 footmen and horsemen, and his expences are 20,000 rupees, and he collects his revenue on the kalang. The position is a strong one, and Meer Alam khan can do nothing against it. He is on friendly terms with Ghafar khan, with Saiyad Bhawadeen Padshah, of Kunar, and with Ameer Dost Mahammad khan of Cabool and with the sons of Fatoolah khan of Goshta.

He is powerful, conciliating, and of a liberal disposition, and has absolute power over his subjects.

The Safees of Surkh Kunar are also subjects of Ameer khan, amounting to 6000 matchlockmen, who reside in the valleys of the hills, their cultivation depending on the rain; they have scarcely sufficient drinking water for themselves and cattle.

Proceedings of the Asiatic Society of Bengal, OCTOBER, 1845.

The monthly meeting of the Society was held on Friday evening, the 3rd October, at the usual hour, S. G. T. Heatly, Esq. senior member present, in the chair.

The proceedings of the meeting of August were read and confirmed.

The following Members, proposed at the August meeting, were balloted for and duly elected: C. S. Hardinge, Esq., P. S. to the Right Hon'ble the Governor General.

Manuckjee Rustomjee, Esq.

And the following new member proposed: .

Lieutenant D. Briggs, B. N. I., proposed by R. W. Frith, Esq. seconded by H. Torrens, Esq.

Capt. Marshall objected to the irregularity of the meetings. He was answered by the Secretary, that for the last day of meeting there was nothing to be done, and that it was postponed by order of the Senior Vice-President. Capt. Marshall said at all times there might be matter for a meeting, and objected, generally, to the omission of a night of meeting; did not think that such irregularity did good to the Society, and further proposed a resolution bearing upon the points agitated by him, which it was decided, after some discussion, would better be circulated to resident members as notice of an intended motion to be brought forward and fully discussed at the next regular night of meeting.

Capt. Marshall acceded to this suggestion and the Secretary received instructions accordingly.

Read the following list of books presented and purchased since the last meeting:

List of Books received for the Meeting of the Asiatic Society of Bengal, Friday, the 3rd October, 1845.

Presented.

Meteorological Register for July and August, 1845, from the Surveyor General's Office.

Calcutta Christian Observer for September, 1845.—By the Editors.

Oriental Christian Spectator, for August and September, 1845.—By the Editor.

Proceedings of the Geological Society of London, 1843-44, No. 99, vol. IV.—By the Society.

London, Edinburgh and Dublin Philosophical Magazine, No. 173, for April, 1845.—By the Editor.

Journal of the Royal Geographical Society of London, vol. 13, Part II. 1843.—By the Society.

Bullétin de la Société de Géographie, Troisième Série, Tome I. Paris, 1844.—By the Society.

Jahrbücher der Literatur, 1844, Nos. 105 to 108, 4 vol.—By J. v. Hammer-Purgstall.

La Rhetorique des Nations Moosulmans, Traduite du Persan par G. de Tassy. Paris, 1844, 2 copies.—By the Translator.

Natural History, Diseases, &c. of the Aborigines of Brazil, translated from the German of Dr. v. Martius, by J. Macpherson, Calcutta, 1835.—By the Translator.

Transactions of the Irish Academy, vol. 20, Dublin, 1845.—By the Society.

Arabic Syntax, by H. B. Beresford, London, 1843.—By the Author.

Note on the Historical Results from the Discoveries in Afghanistan, by H. T. Prinsep.—By the Author—2 copies.

Zeitwarte des Gebets, Arabisch und Deutsch, von J. v. Hammer-Purgstall. Wien, 1844.—By the Author.

Map of India, 1845.—By the Hon'ble W. W. Bird.

Grammar of the Language of Burmah, by T. Latter, 1845.—By the Author.

Selection of Papers from the Records of the East India House, 4 vols.—By H. Torrens, Esq.

India House Papers—Marquess of Hastings, 1 vol.—By H. Torrens, Esq.

Presented by His Imperial Majesty the Emperor of Russia.

Tibetisch Deutsches Wörterbuch, von J. J. Schmidt. St. Petersburg, 1841, 1 vol.

Grammatik der Tibetischen Sprache, von J. J. Schmidt. St. Petersburg, 1843, 1 vol.

Der Weise und der Thor, Tibetisch und Deutsch, von J. J. Schmidt. St. Petersburg, 1843, 1 vol.

Mongolisch-Deutsch-Russisches Wörterbuch, von J. J. Schmidt. St. Petersburg, 1835, 1 vol.

Grammatik der Mongolischen Sprache, von J. J. Schmidt. St. Petersburg 1831, 1 vol.

Die Thaten des Bogda Gesser Chans, aus dem Mongolischen übersetzt, von J. J. Schmidt. St. Petersburg, 1839, 1 vol.

Ch. M. Fraehnii recensio numorum Muhammedanorum, Petropoli, 1826, 1 vol.

Jbn. Fozzlan's und anderer Berichte über die Russen älterer Zeit. Text und Übersetzung, von C. M. Frähn, St. Petersburg, 1823, 1 vol.

Die Münzen der Chane vom Ulus Dschutschis, von Th. M. Frähn. St. Petersburg, 1832, 1 vol.

Sammlungen historischer Nachrichten über die Mongolischen Völkerschaften, durch P. S. Palas. Petersburg, 1776—1801, 2 vols.

Archiv für Asiatische Litteratur, Geschichte und Sprachkunde, von J. v. Klaproth, Erster Band. St. Petersburg, 1810, 1 vol.

Catalogue de la bibliothèque d'Edchmiadzin, par M. Brosset. St. Petersburg, P.

- Arithmetik (in Georgian) by A. Ponofa. Kasan, 1837, 1 vol. •
- Monographie des Monnaies Armeniennes, par M. Brosset. St. Petersburg, 1839.
- Dictionnaire Géorgien-Russe-Français, par D. Tchoubinof. St. Petersburg, 1840, 1 vol.
- Déscription Géographique de la Géorgie par C. Tsarevitch Wakhoucht, publiée par M. Brosset. St. Petersburg, 1842, 1 vol.
- Podcoigi Jspolunago Zaslygh Geror, etc. par R. J. Chimda. St. Petersburg, 1836, 1 vol.
- Sahb Jshi Jainle ili Tnoecklin par Kitichimli, Tikstomb. St. Petersburg, 1839, 1 vol.
- Assseb-o-Ssseirb ili Semb Planet, etc. par Seüda Mykhammeda Rishi, Kasan, 1832 1 vol.
- Kitaiskar Grammatika, Petersburg, 1838, 1 vol.
- Mongolbscae Khrestomatie, par O Cobalibscimh, Kasan, 1836-37, 2 vols.
- Sogranie, etc. Mongolbscii Beybien, etc. Kasan, 1841, 1 vol.
- Grammatika Tyreiko, Tatarchago Kasan, 1839, 1 vol. •
- Armeno Pyssei Slowarg, Moskwa, 1838, 2 vols.
- Persidchae Khrestomatie, Moskwa, 1832-34, 3 vols. in 2.
- Mongolbscae Khrestomatie, Kasan, 1836, 2 vols. in 1. •

Presented by His Majesty the King of Holland. •

- Museum Anatomicum Academiae Lugdunae Batavae, descriptum ab Edward et Gerhard Sandifort, Lugdunae, 1793—1835, Fol. 4 vols.
- Verhandelingen over de Natuurlijke Geschiedenis der Nederlandsche overzeesche Bezittingen, Uitgegeven door J. C. Temminck, 1 vol.
- Tabulae craniorum diversarum nationum. Ed. G. Standifort. Lugduni Batav. 1838 to 1843, fol.
- Historia Jernanae sub Hasano Pascha, Ed. Ant Rutgers, Lugduni, Bat. 1838, 1 vol.
- De Expugnatione Memphidis et Alexandrinae liber, vulgo adscriptus Abou Abdullae, Mohammedi Omari filio. Textum Arabicum ed. H. A. Hamaker, Lugduni Bat. 1825, 1 vol.
- Abul Abassi Amedis, Tulongidarum primi, vita et res gestae, Auth. F. Roorda. Lugduni Bat. 1825, 1 vol.
- Specimen Criticum, exhibens locos Ibn Khacanis de Ibn Zeidouno. Ed et. Lat. vert. H. Engelin. Weijers. Lugd. Bat. 1831, 1 vol. •
- Nieve Proeve om de Arabische Letters door het gewoon Europeesch Karakter onderscheidenlijk uit te drukken. Voorgesteld door H. E. Weijers, Leyden, 1840, 1 vol.
- Specimen e litteris Orientalibus, exhibens majorem partem Libri As—Sojutii, de nominibus relativis inscripti, Arab. ed. P. J. Veth, Lugd. Bat. 1842, 1 vol.
- Pars reliqua Libri As—Sojutii, etc. Ed. P. J. Veth, Lugd. Bat. 1842, 1 vol.
- Specimen e litteris Orientalibus, exhibens diversorum scriptorum locos de regia Aphthasidarum familia, Ed and Lat. vert. M. Hoogoliet, Lug. Bat. 1839, 1 vol.
- Sojutii Liber de interpretibus Korani. Arab. Ed. A. Meursinge, Lugd. Bat. 1839, 1 vol.
- Taalibii Syntagma dictorum brevium et acutorum, Arab, Ed. and Lat. vert J. J. P. Valetton, Lug. Bat. 1844, 1 vol.

Books Exchanged.

- Journal Asiatique, 4me Série, Tome III., IV. Nos. 19 and 20, Tome 5th, No. 21.
- Calcutta Journal of Natural History, No. 22, July, 1840.

Athenæum for June 21st, July 5th, 12th, 19th, 26th, and August 2nd, 1845.

The Asiatic Journal and Monthly Miscellany, No. 24, April 1845, 3rd Series, vol. 4th.

The Edinburgh New Philosophical Journal.—By Professor Jameson, January to April, 1845.

Books Purchased.

Journal des Savants, January to March, 1845.

Classical Museum, No. 8, July, 1845.

Annals and Magazine of Natural History, vol. 15th, No. 101, Supplementary number.

New Cratylus.—By J. W. Donaldson, Cambridge, 1839, 1 vol.

Travels in Kashmir and in the Punjab.—By Ch. v. Hügel, London, 1845, 1 vol.

Description of Hindoostan.—By W. Hamilton, London, 1820, 2 vols.

Voyage from England to India.—By E. Ives, London, 1773, 1 vol.

Memoir on the Mahrattas.—By V. Blacker, London, 1821, 1 vol.

Read extract of a letter from the Rev. J. Moore, Agra, as follows :—

“ I should be glad if the Society would still further reduce the price of their Books. I could then be more bold and make larger indents on you.

I shall send your Sanscrit list in a day or two, with such additions as I can glean here.”

The Secretary was directed to enquire to what amount Mr. Moore hoped to be able to dispose of the Society's publications, expressing at the same time its wish to afford him every assistance in so doing.

Read letter from B. C. Colvin, Esq., Officiating Register, Sudder Dewanny Adawlut, as follows :—

No. 1215.

To the Secretary to the Asiatic Society.

Nizamut Adawlut, Present : J. F. M. Reid, Esq. Judge.

SIR,—I am directed by the Court to transmit to you two Copies of a Report of a trial for Rebellion held at Maulmain, and the painting and images therein alluded to, for the purpose of being deposited in the Museum of the Asiatic Society, if deemed fit objects by the Committee of Papers.

B. C. COLVIN,
Officiating Register.

Fort William, the 12th September, 1845.

Ordered that, with the best thanks of the Society for this highly curious communication, the painting be placed in the Museum, and the Report printed in the Journal.

Read the following letter from W. Prinsep, Esq. relative to the picture of Mr. Thoby Prinsep.

H. TORRENS, Esq. *Secretary to the Asiatic Society, Calcutta.*

MY DEAR TORRENS,—My absence from London, Sir Edward Ryan's engagements, and other things have prevented my being able earlier to inform you of the completion of Sir Edward Ryan's picture for the Society. It is now however being packed for shipment and my friend Henderson will advise you when and how it is forwarded to you.

The cost of this picture has been : Advanced on first-sitting

to Mr. Lawrence,.....	£	40	0	0
Balance paid this day as per agreement,		31	10	0
Freight, Insurance and shipping, by Roberts, Mitchell and Co.		3	10	0
	£	75	0	0

Thoby and I drew upon you before for £100 on account of the two pictures, Sir E. Ryan's and his own. We now draw for £35 at 1s. 9d. (or Co.'s Rs. 400)—to meet the above sum, which we pray you to honor in favor of Roberts, Mitchell and Co., and the remainder will be drawn as soon as Mr. Say shall have finished the picture of my brother, but here I am sorry to say we have been delayed by the severe illness of the painter, who has all this season been unable to proceed with his work. He has very nearly finished the likeness which is admirable, but the remainder has a good deal to be done to it. I am however in hopes that the painter, who is now recovering in the country, will before the end of the year be able to complete the picture, which I am sure will give your Society great satisfaction—to whom, I beg you will explain that it has been from no neglect on the part of your delegates that you have not sooner received the pictures which were ordered.

W. PRINSEP.

Read the following correspondence :-

TO H. TORRENS, Esq. *Secretary to the Asiatic Society.*

SIR,—I have received from Lord Derby a quantity of wiring to set up as an aviary, wherein his lordship wishes me to take charge of any Pheasants, &c. which his correspondent may send up from the hills, or which I may be able to procure for him until I can get them shipped. And I write now to ask whether it would be agreeable to have the same set up in the Society's compound in place of the bamboo erection which is there at present. In granting permission it would be as well, for form's sake to acknowledge the aviary as belonging to Lord Derby, and not to the Society, in case his lordship might ever wish to have it removed, which however is not very likely. To the Society, its being built on the premises would often be very convenient.

Your's respectfully,

E. BLYTH.

September 12th, 1845.

Note.

I have to submit the accompanying proposal to the Society :

A handsome aviary put up free of cost would be an object for us to secure. How far, under existing circumstances, we should be right in countenancing Mr. Blyth, who already complains of having much too much to do, in becoming the collecting Agent of an English Ornithologist is a question to be considered.

H. TORRENS,

Vice-President and Secretary, Asiatic Society.

September 13th, 1845.

TO E. BLYTH, Esq.

SIR,—I have the honor to acknowledge the receipt of your letter under date the 12th instant, relative to the construction of an aviary on the Society's premises.

2. In reply I have to state, that under all the circumstances of the case, the proposal made by you in behalf of Lord Derby is acceded to.

3. You are requested to submit a note of the probable size of the aviary, and to consult with the Secretary as to the site, which may be perhaps so selected as to make the object on ornamental and attractive one on the premises. It is of course understood that the aviary remains a fixture pending communication with the party at whose cost it is erected.

4. The charge of the birds on account of Lord Derby is a duty which the Committee conclude will in no way interfere with your professional pursuits on the Society's account.

H. T.

The proposal was generally approved, and the Secretary was requested to superintend the erection of the intended structure, in communication with Lord Derby on the subject.

Read the following letter from the Asiatic Society of Ceylon :—

The Secretary of the Asiatic Society of Bengal.

SIR,—I am directed by the Asiatic Society of Ceylon to order for their use the Journal of the Asiatic Society of Bengal. On your sending me an account of the annual subscription an order for the amount shall be sent, in the mean time you will perhaps oblige the Society by sending a copy of the last addressed to me.

Yours,

WM. KNIGHTON,
Honorary Secretary.

Colombo, August 18th, 1845.

Resolved that the Secretary be desired to express the gratification of the Society at the prospect of an intercourse with that of Ceylon, and to request its acceptance of as complete a set of the Society's Researches and Journal as can be now procured, free of expense, and that the same be regularly forwarded to it in future.

Read the following letter from the Baron Von Hammer Purgstall :—

SIR,—I have the honour of transmitting by your channel to the Asiatic Society, the set of the Vienna Review of the last year, together with a small Arabic prayer-book of mine, and to be with the highest regard,

Sir, Your's most humble, most obedient servant,

J. HAMMER PURGSTALL.

Vienna, the 8th of February, 1845.

The beautiful translation of the Arabic Book of Prayer was much admired, and the Secretary was desired, specially, to express the best thanks of the Society for this valuable addition to its library.

Read the following letter of the Chief Librarian to the King of Prussia :—

To the Honorable the Vice-President and Secretary of the Asiatic Society of Bengal.

SIR,—Having received through His Excellency Dr. Eichhorn, His Majesty's Minister of Public Instruction, a copy of the standard works in and upon the Arabic, Sanscrit and Thibetan language, published by or deposited for sale with the Royal Society of Bengal, and sent to His Excellency, with your letter dated September, 1843. I feel it an incum-

bent duty to address you, Sir, begging to accept my best thanks for your kind mediation in forwarding the valuable gift to Berlin, and to oblige me by expressing to the Royal Society, my sense of deep gratification at the reception of a present for the Royal Library, which proves doubly valuable at a moment when the study of Eastern languages and literatures in Berlin is taking a new development by the acquisition of the whole manuscript collection of the late Sir Robert Chambers, which from His Royal Majesty's munificent donation has been incorporated into the institution under my care.

The Royal Library having hitherto not been in possession of any volume of the *Ináya*, and now received only the volumes 2, 3, and 4, I should feel exceedingly thankful, if by your kind interference the first volume was to be added to the gift of the Royal Society, or perhaps could be procured at our expense, in which case I should be happy to get, if possible, also the 17th volume of the Transactions of the Royal Society, the only which we have hitherto been unable to procure, and the volumes 1—7 of the Journal of the Asiatic Society; the Royal Library being in possession of the Asiatic Researches, T. 1—16, 18—20 (P. 1, 2,) and the Journal, New Series, T. 8—11, (P. 1, 2.) Mr. Wattenbach of the house of Huschke, Wattenbach, and Co. at Calcutta, would on account of the Royal Library willingly repay the expenses incurred by you.

His Excellency intends writing himself in order to thank you for the gift, which has been disposed of in favour of our institution and of the Library of the University at Halle, and proposes to send you as a proof of his sense of gratitude, several works published by order and under the auspices of Government, viz. the complete edition of *Aristoteles* by Benker, and the *Thesaurus Inscriptionum* by Boeckh. As member of the Royal Academy of Science, whose library is distinct from the Royal Library, I may add, that we should be happy to present you also with a copy of our Transactions from 1825 to 1843, 25 vols. in 4to. if you would like to receive them; and perhaps the Asiatic Society would agree to a continual exchange of their Transactions, the library of the Royal Academy being hitherto not in possession of any of them.

I have the honor to be, with the highest consideration,

Sir, Your obedient servant,

DR. PERTZ.

Chief Librarian of His Majesty and Counsellor of Government.

Berlin, 10th June, 1845.

REPLY. • •

TO HIS PRUSSIAN MAJESTY'S CHIEF LIBRARIAN.

SIR,—I am charged to express to you the high satisfaction of the Asiatic Society of Bengal at finding that their Oriental publications have been so acceptable to the excellent Institution at the head of which you preside, and that His Majesty has been pleased to direct His Ex. Dr. Eichhorn to take an occasion of acknowledging them.

I shall have pleasure in procuring if possible, and forwarding free of cost, the 1st Vol. of the *Inaya*. The 17th Vol. of our Transactions, I am directed to take an early opportunity of sending to you from the Asiatic Society of Bengal.

The early numbers of the Society's Journal will, I fear, be procured with difficulty, and as they are the property of myself in succession to my lamented predecessor, James Prinsep, not I am afraid without my being compelled to draw on Huschke, Wattenbech, and Co. for their cost. This is owing to the Journal having been up to the commencement of the year 1843 published as the property, and at the risk of the Society's Secre-

tary, an arrangement now superseded by a better plan of management, its property now vesting in the Society.

I am directed to acknowledge with the expression of our sincere gratification the pro-Bekker's Arist. mised donation as per margin, and to state that the Society thank-Boerkh's Ther. Inst. fully avails itself of the offer to supply from your Royal Academy of Science, the Transactions from 1825 to 1843, and will gladly continue to interchange its own transactions for them in future.

I take this occasion of stating that you will, I trust, receive by the beginning of next Istallahat-i-Soofoea, Ed. year, one or two of the latest Oriental publications as per margin.

Dr. A. Sprenger. The Society will also despatch when complete a Sanscrit Anthology Tarcekh-i-Nadiree, Ed. Soc. Asi. Ben. gy now in the press, edited by Dr. Haberlin, one of its members. The second volume of the Naishada, which will make that work perfect, will be our next undertaking, and will I hope shortly be commenced on.

I have, with the expression of my high respect and consideration, the honour to subscribe myself, &c.

H. TORRENS.

Read the following letter :—

To the Secretary of the Asiatic Society, Calcutta.

SIR,—In forwarding No. VIII. of our Journal for the acceptance of the Bengal Asiatic Society, may I request you will do me the favor of submitting to the Committee of your Society the enclosed Prospectus of our Journal, which will in future be published by subscription, and not from the funds of our Society as heretofore. In intimating this may I further request your good offices in obtaining on your side of India subscriptions to the work ; which will be forwarded per Banghy to any part of Bengal. I shall feel extremely obliged if you will have the kindness to send back the subscription list at your earliest convenience.

JAMES BIRI
Secretary.

Bombay Branch Royal Asiatic Society, 28th July, 1845.

Ordered that the letter and Prospectus be printed in the Proceedings, as being the best assistance which the Society can give, and that names of subscribers be received by the Society for the Bombay A. S.

PROSPECTUS.

Quarterly Journal of the Bombay Branch Royal Asiatic Society, edited by the Secretary.

The Committee of the Society, appointed at the Meeting of the 12th December last, to audit the accounts and for other financial objects having reported that the expenses of the Quarterly Journal can be no longer debited to the current Income of the Society, but must be liquidated from special subscriptions to this individual object ; the Secretary begs leave to intimate his willingness to carry on this publication under the auspices of the Society, provided nearly sufficient subscriptions, among the Resident, Non-Resident Members of the Society and others, are obtainable for defraying the expenses of publication. Situated so favourably as we are in Western India, for investigating and illustrating peculiar and particular objects of research relative to *Hindu Mythology, Philology, and History*, we are in possession of exclusive advantages for acquiring novel and useful information on the *Ethnography* of the various Asiatic races and regarding the *Geography*

and *Natural History* of the neighbouring countries; and on the *Palaography* and *Arts* of their inhabitants; placed as we find ourselves between *Arabia*, *Persia*, and *Tartary* on the one hand, and *Egypt*, *Ethiopia*, and *Africa* on the other. With such advantages of locality it seems incumbent on us and the Society to diffuse and make known that information, (on various subjects of Oriental Research,) which many, the Editor has found, are willing to collect and communicate. No exertion of his shall be spared to make the Journal as extensively useful and interesting, on all subjects, as the advantages of the locality naturally promise; and he is sanguine, from the assistance hitherto given, that the exertions of contributors will rather increase than diminish. The size of each number will be generally about a hundred octavo pages with Lithographs: for which it is proposed to charge Rupees 2 to Members of the Society, and Rupees 2-8 to *Subscribers* not Members. The following are the contents of the October Number, now nearly ready for issue from the Press. 1st. Two ancient Inscriptions in the Cave character and Sanscrit language translated into English. 2nd. An account of the temple of Somnath, and translation of a Sanscrit Inscription found there. 3rd. The late Mr. Prinsep's correspondence relative to Indian Antiquities. 4th. Hamaiyaric Inscriptions from Aden and Saba translated into English. 5th. Geological observations on the alluvial soil of Sindh, and hills in the neighbourhood of Hyderabad. 6th. Observations on the Runic Stones of Scotland. 7th. Notice on Hindu gold coins found in the Southern Konkan, and on the gold Zodiac coins of the Emperor Jehangir. 8th. On the origin of the Hamaiyaric and Ethiopic Alphabets. 9th. Analysis of a work, entitled *Historical Researches on the origin and classes of the several Cave temples of Western India*. 10th. Literary and Scientific notices. 11th. Proceedings of the Society.

At the January Monthly Meeting of the Society, the following gentlemen subscribed their names to the continuation of the Journal: and such Resident Members of the Society as are disposed to support it will favor me with their names and address.

JAMES BIRD,
Secretary.

Bombay Branch Royal Asiatic Society's Rooms, 23rd June, 1845.

Read the following letter from the Geological Society of London:—

TO H. TORRENS, ESQ.

SIR,—In reply to your application respecting certain missing numbers of the Proceedings of the Geological Society, I am requested by the President and Council of the Society to inform you, that they have much pleasure in directing that those numbers should be forwarded to the Asiatic Society of Bengal immediately, and without any charge.

I am also instructed to express through you the thanks of the President and Council for the donation of the *Researches of the Asiatic Society of Bengal*, which they have received from that Society.

WILLIAM HAMILTON.

Geological Society, Somerset House, April 5th, 1845.

The Map of India presented by the Society's late President the Honourable W. W. Bird, was exhibited and directed to be placed in the Library.

Read the following note from the Baron des Granges, accompanying the presentation referred to :—

To the Secretary of the Asiatic Society.

Baron des Granges humbly presents to the Secretary of the Asiatic Society, a few specimens of his first crop of Nutmegs in his Plantation at Mergui—which Nuts become more remarkable, as they are not only the first raised, and in so high a latitude as Mergui, but because they will be under the circumstances, also the last grown at Mergui, at least in the Baron's Plantation.

Calcutta, 9th August, 1845.

Read the following letter from James F. Corcoran, Esq. :—

To H. TORRENS, Esq., &c. &c. &c.

DEAR SIR,—I have been advised by persons who know best about these matters, to defer the publication of the *Guldastâe Ishk* until the public are somewhat more acquainted with me; because as that book is a mere collection of tales, and is high-priced besides, I should not get sufficient subscribers for it until people know what ability I possess to get creditably through such a work. I have, therefore, determined on first publishing the little book of translation, (whose Prospectus I beg herewith to send,) in order that as the price is low and the original in universal estimation, there may be a chance of its selling well and of paving the way for the more voluminous *Guldastâe Ishk*—which would then be viewed with some respect; as a stranger, with whom, though personally unacquainted, yet of whose merits we have heard enough to give him a warm welcome.

I entertain great hopes that your patronage will be extended to me, and if, through your influence, the Asiatic Society would condescend to honor me with theirs, my little work would glide glibly into existence.

JAMES CORCORAN.

Calcutta, 23rd June, 1845.

Ordered that the Society subscribe for ten copies of the work, and that it do afford Mr. Corcoran the advantage of making his work better known by printing the advertisement and specimens in the Proceedings. They are as follows :—

Advertisement of a new Translation of Esop's Fables, into the Urdû Language, by Mr. James Francis Corcoran. Respectfully dedicated to Robert Haldane Rattray, Esquire, B. C. S. Judge of the Sudder Nizâmut and Diwâni Adâlat.

The Grecian Fabulist has for some years been before the Public in a Hindûstani dress; and some explanation may therefore be deemed necessary, as an apology for the present repetition. I presume not to say that the translation now offered is better than the one we have: this the Public must decide. I may, however, exhibit those pretensions to their patronage which I imagine to be mine; and this done, I will patiently await their judgment.

In the present version I have endeavoured, first, to render the Urdû more colloquial and spirited than it is in the old translation; and, secondly, the *moral* of each fable has

been attempted in poetry, with the view of enabling the reader to remember its application to the occurrences of life.

The Persian Lokman said, that he had learned good breeding from the vulgar, by never imitating their actions. In like manner I owe an acknowledgment to the former translator; since the rock he struck upon has warned me to shape my course, as I hope, more successfully. He has failed by too rigid an adherence to literal translation; the respective idioms of Urdú and English so materially differ, that what is witty and energetic in the one language, literally rendered in the other becomes dull and vapid. A pardonable licence has accordingly been taken, whenever the genius of the original or the turn of the dialogue appeared to require it. I have not, however, indulged in too many liberties with my author; bearing in mind that "between freedom and impertinence there is but a step."

Occasionally, a trifling addition has been made to the moral of the fable; with an attempt to avoid sameness, by exhibiting the sentiment, sometimes in lively, sometimes in serious, verse.

It is proposed to print at present, Part 1st of the Translation, comprising 50 Fables, and during the next quarter of the year, "Part 2nd," provided the humble Translator be honored and encouraged by the extension of a remunerating patronage.

اشتہار

یونان کے طبقے میں ایک شخص حکیم منس تھا جسکا نام اسپ مشہور ہی اور جسکی تصنیف لڑکے سے بوڑھے تک سب کو پسند ہی اور اسکا ترجمہ سب زبانوں میں ہوا ہی چنانچہ اردو زبان میں بھی نہایت مشہور ہی اگرچہ اس کتاب کا ترجمہ اردو میں جاری ہی مگر عاصی جمس کارکن نے دوبارہ اسکے ترجمہ پر اس بزرگ کی خواہش اور ارشاد سے کمر باندھی ہی جسکے علم اور فضل کے باران فیض سے باغ انشا پردازی کا شاداب اور زمین شعر گوئی کی سیراب ہی چونکہ ہندے کو معلوم نہ تھا کہ سخن کے بازار میں اس انمول جواہر کے کتنے خریدار ٹھہریں گے اس جہت سے فقط پچاس نقلوں کا ترجمہ بالفعل چھپے گا اور آئندہ انشاء اللہ تعالیٰ اگر زندگی باقی رہی اور لوگوں نے قدردانی کی تو ارادہ ایسا ہی کہ باقی جو نقلیں رہ جائیں گی سب صاحبوں کی خدمت میں پیش ہوئیں گی اور اس ترجمہ کی ایک نقل بطور نمونہ کے اس اشتہار کے ساتھ چھپی ہی *۔ قیمت

هر جلد كى دورويہ * جن صاحبوں كو اس كتاب كے ليئے كى
خواهش هو آنهين چاهئے كه مهربانى كى راه سے ايذا نام و نشان
يا جاي سكونت اسكے ساتھ جو مادي كتاب هى آسمين مندرج
كر ديونى فقط

SPECIMEN OF TRANSLATION.

Fable of the Lion and the Mouse.

شير اور چوھے كى نقل

ايك دفعه كسي شير كے پنجون تلے ايک - پوها آگيا اور شير
نے آسے مار دالنے كا قصد كيا مگر جب آس بيچارے نے بہت
آہ و زاري سے اپني جان بخشي چاهي شير نے آسے رھائي دي
چند روز كے بعد انقلاب روزگار سے ايسا هوا كه وھي شير ايک
شكاري كے دام ميں آگيا ليكن جب آس چوھے كو يھ وحشت
ناگ خبر مائي آسنے اپنے محسن كى مدد كى اور بات كے
كھتے جال كو كترا اوز شير كو خلاص كر ديا فقط

حاصل

بتايا هى گر تجھ كو حق نے امير * * نديكھ ان غريبن كو هرگز حقير
خبر اپني گردشكي بهي هى كهیں * * كه ايک حال پر كوئي رھتا نهیں
كيہ جس نے رحم آسنے پايا هى رحم * * خدا آسكھي جس نے كھايا هى رحم

Read the following Memorandum from the Sub-Secretary:—

MEMORANDUM.

Extract from a letter from Dr. Sprenger to the Sub-Secretary.

I have found a copy of the book which I have published on Sufism here and see the edition is very correct. The Society would do me a favour if it would send some copies to Europe for sale to the Asiatic Society at Paris, and to Mr. Norris or Mr. Neal, clerks to the Asiatic Society in London, requesting them to send the same to Brockhaus at Leipzig and other places with the books of the Oriental translation committee, in order to render the publication known.

The Secretary notes with reference to this Memorandum, that Dr. Sprenger's suggestions have already been acted upon.

Read the following letters from the late Major Leech and R. C. Cust, Esq., B. C. S.

TO H. TORRENS, ESQ. *Secretary, Asiatic Society.* •

MY DEAR SIR,—I have the pleasure to inform you that I will despatch by banghy dawk to-day or to-morrow, for presentation to the Asiatic Society, three other MSS. relating to the History of the Afghans, and a History of Herat, with the commencement of our Abstract of the same.

It had been my intention with the above materials and those already in the possession of the Society (History of the early Abdalecs) and with the History of Ahmud Shah Duranee forwarded yesterday, to have compiled a History, but I have not hitherto had, nor do I see any prospect of my ever having the requisite leisure.

An accident moreover that my small library met with (vide the damaged state of the MSS.) a few months ago, has determined me to lose no time in placing the valuable MSS. in a safe place.

The Society are of course at liberty to put them at the disposal of any person having more leisure than myself to extract what is interesting in them.

R. LEECH,

1st A. G. G. A., N. W. P.

Umbalah, 7th August, 1845.

TO H. TORRENS, ESQ.

MY DEAR SIR,—I have the pleasure to inform you that I will to-day or to-morrow transmit by banghy dawk, for presentation to the Asiatic Society, the History of Ahmad Shah Duranee, in Persian, accompanied by an abstract of the same. I have every reason to believe that the work is a scarce one. It was procured by me after several years' search in Afghanistan. The original (the one from which this is a copy) is in the possession of one of the Princes at Peshawar.

R. LEECH,

1st A. G. G. A., N. W. P.

Umbalah, 5th August, 1845.

TO H. TORRENS, ESQ.

MY DEAR SIR,—Among the papers upon the table of my lamented friend Major Leech, I found when taking charge of his office at Umbalah a letter from yourself, dated the 20th ultimo, open, but unanswered, conveying to him the thanks of the Asiatic Society for his map of the Kurukhetra. He received it a few days before he died, and one of his last acts was giving instructions to his Pundit and Mapper, with regard to the completion of the interesting work, which he had in part forwarded to you. In this part of the world we have much to regret his loss, and his papers shew the number of scientific and curious researches in which his active mind was unceasingly employed, of the results of which the Journal of the Asiatic Society has more than one specimen. Some of the works which he forwarded to Govt. have not yet seen the light. I trust that they may (especially a contribution upon the subject of the Sikh religion) some day be published.

It appears from your letter about the Kurukhetra that you are in the belief that the whole of the narrative to accompany the map has been forwarded to you :—if I am not in error, a great portion is still unfinished, but I have directed the Pundit employed to proceed in his works, and if you desire it I will forward it to you. • I have been aware of Major

Leech's interesting project from the first day that it was started by him, and I trust therefore that I shall be able to assist you to whatever may appear necessary to complete it. I am having a copy of the map made in the Persian character,—and I should suggest also having a translation of the narrative also made in the Persian language, as after all Sanskrit is a language known only to few, and the Mahá Bhárata itself is better known in its Persian translation, I suspect, than in the original : at any rate publishing the map and pamphlet in Persian, would greatly extend the publicity of the work, though I am afraid it would entail a considerable additional expense on the Society. I am having a copy also of the map prepared in *Goormukhee*, the sacred character of the Sikhs; and here a question is started whether a work should not be struck off in that character also. The whole of the Kurukhetra is included in the territory of the Sikhs—the chiefs who now possess the country, except those parts which have lapsed to us, know and read no other character, and one of Major Leech's objects was to present to each chief a copy of the map, if possible one of an ornamented kind (perhaps in gold letters on parchment)—of course the value would to them be increased if they could read the names on the map, and understand the words of the account, which they certainly would not do in Persian or Sanskrit. It would be a desirable result if these chiefs could be prevailed upon in return for the compliment of the map to subscribe towards establishing an efficient college for the study of Sanskrit and *Goormukhee* at *Ghanesun*, a holy place within the limits of the Kurukhetra. We have an inefficient college for Sanskrit at Umbalah, but on a very limited scale. Do you think the Society would object to making a donation to the Pundit, who has been zealously employed in this work for six months? Major Leech's sudden death has of course left the accounts of all the parties employed unsettled. I feel too happy to take upon myself all charges connected with so interesting an undertaking, but the Pundit with a natural pride in his work seemed anxious for some acknowledgment from the higher powers. I therefore take the liberty of bringing it to your notice. He is the head of our Umbalah Sanskrit College.

ROBERT CURT,
Civil Service.

Simlah, 12th September, 1845.

The letters being read the Secretary begged leave to express to the Society the irreparable loss it has sustained in the death of Major Leech ; a gentleman not less distinguished for his eminent services as a public officer than for his professional abilities and extensive knowledge of native languages, history, manners and customs ; his untiring zeal and industry in researches connected with these subjects, and the noble liberality of mind with which he on so many occasions has communicated the fruits of his knowledge and labour for the public benefit from 1838, in which year his first contribution, *A grammar of the Brahoosee, Beloochee and Punjabee languages*, adorned the pages of our Journal. Vol. VII. p. 780.

There is indeed too much reason to fear that, like the lamented James Prinsep and others, Major Leech has fallen a victim to excessive mental labour ; adding another to the long catalogue of the truly noble men

who have perished in their exertions to forward, in common with the Asiatic Society, the high task and duty of every liberal, right-minded, and educated Englishman in this country—the task and the duty of aiding in every way to give to the British power in India, for the great ends which it has yet under Providence to accomplish, those means and that stability which can only be found and assured for it by the one great essential to the right exercise of the power of every foreign government—an intimate knowledge of the country and of the people over which it rules.

Read the following letter from Capt. Phayre, Bengal Native Infantry, Assistant to the Commissioner of Arracan.

MY DEAR TORRENS,—I have just arrived here from Sandoway, and as Latter is here and I am anxious to have the advantage of comparing along with him all the various Arakanese coins, will you kindly put those you have of mine on a wax-cloth package, and send them by dawk banghy bearing postage to my address at this place. Latter is working away gloriously and will produce many a fine paper on Boodhism—he has made wonderful progress since I last saw him. The Society's Journal will, I hope, receive many contributions from him. Pray don't forget the coins, and believe me,

Very truly your's,

A. P. PHAYRE.

Akyab, Sept. 25th, 1845.

I know not if you recollect an English translation of a part of the *Dhammathat* you once sent to Major Williams down here ; if you can forward it to me I can now compare it with an original I possess.

The Secretary noted with infinite regret that these coins had shared the fate of our collection, and he was requested to inform Capt. Phayre accordingly.

Read the following letter from the Zoological Curator :—

TO H. TORRENS, ESQ. *Vice-President and Secretary, Asiatic Society.*

SIR,—Among the *Rodentia* of Captain Hutton's Afghanistan collection, is a small animal which I described long ago in the Society's Journal by the name *Georhychus fuscocapellus*, placing it thus among the Lemmings ; but now that we have specimens of the true Scandinavian Lemming in the collection, I find that the Afghan species can no longer be admitted exactly into the same genus, and am under the necessity of establishing a new one for its reception.

Under these circumstances, I write to request that Mr. Hendrie be employed to figure this animal and its skull, as was done with the *Caprologus*, and that on the second or skull-plate, I may also have represented certain crania of Scindian and Afghan Hedgehogs which it is desirable should be figured.

An extra copy of the last No. of the Journal has been forwarded to Major Jenkins, containing the figures and description of *Caprologus* ; and with respect to the additional

wiring required for the aviary, I expect to be able to furnish an estimate of the expense at the Society's forthcoming meeting.

Your's very respectfully,
E. BLYTH.

Asiatic Society's Museum, 1st Oct. 1845.

The proposed plates were sanctioned.

Read extract of a letter from J. Muir, Esq. C. S., transmitted by Messrs. Ostell and Co. as follows:—

There are among the Researches of the Asiatic Society of Bengal, two papers on the Religious Sects of the Hindus, by Professor H. H. Wilson, the first in the 16th vol. containing 136 pp. quarto, and the second I think in the 18th vol., but I have not the means of referring to it. I should feel obliged by your looking at both papers and informing me what it would cost to reprint both (1000 copies in octavo,) in a style similar to that in which the Journal of the Asiatic Society of Bengal is printed, as to type and paper. Of course the reprint could be only done by the Asiatic Society, or with its permission.

(Signed) J. MUIR.

Azimgurh, Sept. 1st, 1845.

Resolved, that the Society will be most happy to allow the reprint of the papers as proposed, stipulating only that "Reprinted from the Researches of the Asiatic Society, vols. 16 and 17," appear on the title page.

Read the following letter from Capt. Latter, Bengal Native Infantry:—

To H. TORRENS, Esq.

MY DEAR TORRENS,—I send you according to promise, the remarks on the Booddhist sculpture sent some time since by me to the Society. As my paper is likely in some points to interest people in Europe—might I ask your kind attention to the accents, &c. of the Greek quotations and to the Hebrew which the compositors are likely to spoil. As also, that if possible the paper may not be divided. It is perhaps rather long—but I had so much to say on the subject, that I could scarcely make it shorter. Would you kindly let me have the full fifty copies (I only got thirty of the note on the coin). I propose to intitle the communication "The Booddhism of the Emblems of Architecture" or any other which you may think advisable. Phayre *begs me to beg you* to send him back the Burmese or rather Arracanese coins. He is very anxious about them, as he wants to make out a paper, which from what he says is likely to appear very interesting. I am afraid you will think the communication I now send rather singular—"Paul, a master Mason!" but I am thinking of inflicting on you a still more singular paper. On the Nine Sacred Jewels of Booddhism. I am only waiting till I can get from home Orpheus' hymn "Perilithon."

THOMAS LATTER.

The paper accompanying this was referred to the Editors of the Journal for early publication.

Read the following letter from M. Lienard, of the Mauritius :—

MONSIEUR,—Mr. Thomy Hugon m'ayant dit qu'il vous serait agréable d'entretenir des relations avec Maurice, je viens sous ses auspices vous proposer un commerce d'échange d'objets d'Histoire naturelle.

Pour débiter, je remets à Mr. Hugon, que veut bien s'en charger, la tête et la caudale d'un Istiophore qui a été pris sur nos cotes. J'y joins une caisse de coquilles de Maurice et de Diego Garcia. Parmi celles de Diego vous trouverez une paire de houlettes que j'ai pêchées moi-même dans l'immense baie de cette île. Jusqu'ici on croyait que la mer Rouge seule recevait ces bivalves.

Je désire, Monsieur, que ce petit envoi vous soit agréable ; vous pouvez compter que je ferai tous mes efforts pour satisfaire à vos demandes et entretenir ainsi un commerce qui ne pourra qu'être avantageux à tous deux, et qui me sera particulièrement agréable : Je serais flatté aussi d'entrer en correspondance avec la Société dont vous êtes membre.

Je suis un peu Zoologiste : C'est vous dire que tout ce que vous pourriez m'offrir en fait de mammifères, oiseaux, reptiles, poissons, mollusques, insectes, arachnides, crustacés, annélides et zoophytes, me ferait le plus grand plaisir : Je me bornerai pour le moment à vous désigner spécialement un objet qui manque à mon musée. C'est un jeune Garial. J'ai des crocodiles de Java, de la cote Malabare, de Calcutta et de Madagascar.

Indiquez moi les objets de notre pays qui pourraient vous être agréables, Je m'empresserai de vos les procurer. Si vous desirez des poissons de mer et d'eau douce, nos cotes et nos rivières en fournissent une grande variété. Parmi ceux d'eau douce, nous avons L'osphronème, qui nous a été apporté de la Chine ainsi que la Dorade, plusieurs espèces d'Eleotées, de gobies, des doubles, des megalopes, des ambasses, des anguilles de deux espèces et le nestis connu vulgairement sous le nom de Chitte.

Si vous voulez bien m'envoyer des poissons du Gange et des étangs du Bengale, ayez l'obligeance de les mettre dans des vases avec de l'esprit de vin. Je vous renverrai les vases avec des poissons du pays.

Je remets pour vous à Mr. Hugon, une série d'observations météorologiques. Je pourrais vous envoyer celles que je fais chaque mois.

Recevez, Monsieur, l'assurance de mes sentiments distingués de considération.

(Signé) LIENARD.

Mon adresse est

Mr. Lienard père, vice President de la Société d'Hist. Nat. de l'île Maurice.
Rue de Castries, Port Louis.

The donations referred to have been subsequently received, and it was ordered that the Journal of the Society be sent to Mr. Lienard from the commencement of 1845, for the Société d'Histoire Naturelle.

The Zoological Curator was also requested to prepare a dispatch of such specimens and duplicates as could be obtained or spared, so as to meet as far as possible Mr. Lienard's wishes.

Read the following letter from P. J. Sarkies, Esq. :—

TO HENRY TORRENS, Esq. *Secretary to the Asiatic Society of India.*

SIR,—A Society having been lately established here by the Armenian community for the diffusion of useful knowledge amongst their countrymen, called the " Araratian Society,

or Society of Ararat," I have the honor, by the desire of the members, to address you this letter, and to request the favor of your presenting gratis to them all the Journals of the Asiatic Society from its commencement, and to continue the same throughout, for which they shall feel highly obliged.

Our object in requesting this favor is to translate the useful productions they contain into the Armenian language, and publish them in our Society's Weekly Journal, the "Patriot," for the perusal and information of those of our countrymen, who are unacquainted with the English language, both here and at other places. The first number of the said publication, I beg leave to forward you herewith.

Trusting that this application will meet with the favorable consideration of yourself, and the members of your Society generally,

I remain, &c.

P. J. SARKIES,

Calcutta, 22nd August, 1845.

Secretary to the Society of Ararat.

Ordered that the Society of Ararat be presented with the Journal from January, 1845, and in future as published.

Read the following correspondence which was approved and ordered to be published.

To the Secretary of the Asiatic Society.

SIR,—I have the honor to submit through you, to the Committee of Papers, the appearance of a memorandum in the Society's Journal tending, in a most serious manner, to implicate my character and reputation in the eyes of my scientific co-labourers, as deliberately advising a measure which is stigmatized in that memorandum with the name of "scientific fraud."

The memorandum in question appeared in the Proceedings of the Society for October, 1844, published in the 154th number of the Journal; and the paragraph to which I would draw the particular attention of the Committee is No. 6 (misprinted as No. 5).

I freely admit that upon more than one occasion, when the subject of Burnes's drawings was mooted in conversation, and also I think once in an unofficial note to yourself, I objected to the extreme rudeness and inaccuracy of certain of those drawings, and recommended that if such had to be lithographed, it would be better to correct the outlines where these were obviously erroneous, by putting such joints and muscles into the limbs of mammalia as they must necessarily possess, and even improving the attitudes in some instances, especially as Burnes's own specimens supply materials for the purpose to a considerable extent:—but most assuredly I never proposed that such alterations should be made without due notice being taken of the same, and can only express my astonishment that it should have been thought necessary to place the matter before the world in the light in which it has appeared.

The purport of my non-official recommendation will be best understood if I adduce two or three instances; and these, to the best of my recollection, shall be the very instances to which my remarks (in conversation) referred.

1. The figure of the Hyena of Cabool (now lithographed) will, in my opinion, disgrace the Society's 'Researches,' if it appears in them: but as the animal is perfectly well known, I believe I recommended that a proper figure of a striped Hyena should be designed, and the markings filled up from the drawing supplied by Burnes.

2. The figure of the wild sheep of the Hindu Kosh ranges, though altogether faulty in outline, is such that a really good figure might be taken from it, aided by very careful drawings from life which I possess of a closely allied species, the *Ovis musimon*, and by the real horns of the animal, of which several pairs were in the collection of specimens forwarded by Sir Alexander Burnes, and (with the exception of duplicates transmitted to the India-house, two pairs only being retained for the Society's collections) now under my charge in the museum.

3. To cite a bird, I remember instancing the *Falco chucquera*, of which the beak in Burnes's figure is very ill-shaped, and the legs and toes are very much too slender. faults that, with others, might have been corrected (as in various other instances) by a reference to *Burnes's own specimens*. Had I been consulted in the matter, I should have done my utmost to dissuade the Society from expending money in the representation of this and many other common and exceedingly well known species, even had they been represented with the requisite accuracy.

But in suggesting the propriety of such alterations (whether rightly or not so in the opinion of the Committee), I do most distinctly protest against the imputed charge that I ever wished them to be effected privately, or in secret,—in other words, that I ever desired the Society should be guilty of a “breach of trust,” which I also would have considered to amount to “a scientific fraud:” and it is due to other zoologists that, I should now interfere in their behalf, to notice an allegation contained in the same paragraph of the same memorandum to the following effect:—

“That the now anxious search of all European naturalists is exactly to find the original drawings from which local found Ornithæ had been published, in order to correct these flourishes, and interferences of authors and naturalists; who, to make better pictures and reduce the birds (principally) to their fancied types and systems, had in many instances created enormous confusion, deprived the original observers of their due credit for active research and accuracy, and had even made them pass, at least as careless persons, if not as impostors; when, on the contrary, the mischief and imposture was the work of the naturalist editors, publishers, and artists.”

I believe, sir, that I have the credit, in well-informed quarters* of a tolerably familiar acquaintance with zoological literature, but I beg to say that I cannot call to mind one • single instance to which the above remarks apply.

The confusion adverted to has, on the contrary, originated in the blind confidence which Latham more particularly, and some other ornithologists of the old school, and of a past generation, reposed in the rude drawings of unscientific artists; so rude, and oftentimes grossly inaccurate, that it is only now that the subjects represented have come to be, for the most part, familiarly known, that they can be recognised in the figures which were intended to represent them,—and that the names subsequently applied to the objects themselves can be superseded by those bestowed on the drawings, and heeding the descriptions taken from the latter, in conformity with the admitted law of priority. Of the fact here stated, I could easily adduce instances almost without number.†

* Vide ‘Report of the British Association,’ for 1844, p. 187.

† In illustration, I send herewith two numbers of the ‘Annals and Magazine of Natural History,’ containing papers by Mr. G. Gray and Mr. Strickland, wherein the confusion that has resulted from the very reprehensible practice of naming species from bad drawings is well exhibited.

Such being the case, I venture to hope that the Committee will perceive the justice of retracting the very sweeping charge against "naturalist editors, publishers, and artists" which has appeared in the *Journal of the Society* : and that it will also admit that the grievous animadversions complained of, having reference to myself, were not merely unnecessarily harsh, but were altogether uncalled for, as founded on a misapprehension of my meaning. At the least, I consider that it was due to me to have been formally asked whether my opinions on the subject were correctly expressed, before such a procedure was resorted to as that of publicly stigmatizing them in the *Society's Journal*.

ED. BLYTH.

Asiatic Society's Rooms, Fort William, Aug. 23, 1845.

Note to the foregoing by the Secretary.

In submitting this note the Secretary desires to remark that Mr. Blyth takes a most mistaken view of the paragraph in question ; inasmuch as, on reading it attentively, it will be clearly seen that no proposal of perpetrating any scientific fraud is attributed to him, but it is simply said, that if *the Society* admitted corrections, it would perpetrate a fraud, and the Committee will remark that it is now fully and clearly admitted by Mr. Blyth himself, that he did propose corrections of joints, muscles and attitudes. How far those corrections were to go, will appear from par. 1 of Mr. Blyth's paper in which he distinctly again avows,—asserting that "the Cabool Hyena is perfectly known," which assumes but one variety to exist, and that we have so perfect a knowledge of the zoology of Afghanistan, that we can be certain that there is only one variety ; and farther that, only one variety exists in the whole valley of the Indus, which would include Scinde, (where Sir A. Burnes's drawings commence.) Asserting and assuming all this at once then, Mr. Blyth proposed, he himself says, to substitute "a proper figure and fill it up with the markings of the Cabool Hyena."

2. Par. 2 of Mr. Blyth's letter carries the matter still further. Pronouncing on an animal which none but travellers in the almost untrodden regions of the Hindu Kosh have seen, and Dr. Lord alone perhaps examined as a naturalist, we are told that by reference to certain drawings of "closely allied species," the horns, &c., a good figure can be taken from it ; so that here is the manufacture of two entire animals distinctly proposed as a mere matter of course ! The same style of argument is continued as to the birds which are also proposed to be "corrected" from stuffed specimens in the face of drawings made from the life.

3. The Secretary presumes that these paragraphs most fully justify the caution and strict observance of the principle upon which the Committee acted, and which the Society approved ; of keeping to rigid and exact copying : and the Committee's expressions (used to explain that strictness) that "if the Society consented to any such alterations, it would be guilty of a scientific fraud, publishing as *the* drawings made on Sir A. Burnes's mission, pictures of something else, &c." We have before us now two distinct proposals for making pictures ; one of which may yet be carried into effect, if the Society approve of it.

In Mr. Gray's paper, it will be observed that an owl (*Athene convivens*) came thus to be described by Latham as a Falcon ! &c. &c. See No. for March 1843, p. 189.

Vide also Mr. Strickland's remarks in the May No., p. 334 ; though I could wish that he had reflected more severely upon the above mentioned extremely objectionable practice on the part of Latham.—E. B.

4. Mr. Blyth now, for the first time, as the Secretary believes, informs the Society that it was intended "to notice all the alterations in the text." He does not perceive that this would amount only to the very stigma which the Committee have been so careful to guard the Society's reputation from. Let it be but once announced that the Society's Curators alter drawings; (except at the special desire of the authors) or its Secretaries papers confided to them, and who will trust such a Society with drawings or papers? or who will refer to its researches with confidence? Mr. Blyth's assumption here is (the notes of Dr. Lord having disappeared) that the Society and the scientific world are wholly to trust to his discretion and knowledge, and even, as in the case of the hyena and sheep, to that of which he can have no knowledge. Both the Secretary and Members of the Committee again and again explained to Mr. Blyth that the honest and straightforward and simple system was, to publish exact copies of the drawings, which would fulfil the Society's public duty, and that he would then have the best opportunities in the world of shewing his own knowledge of the subject, and of having something interesting to say about, perhaps, a very uninteresting bird or animal.

5. The Secretary cannot also on this occasion refrain from adverting again to the attempt to undervalue Dr. Lord's labours, to the extent, nearly, of asserting that he knew nothing of Natural History, in Mr. Blyth's MSS. excuse for the disappearance of the notes formerly submitted to the Committee, and this specially, as he is now enabled, fortunately to shew what the notes may have been, and how ill-deserved any dyslogism applied to them must be. A friend has pointed out to him the following passage which occurs at the close of a very able paper entitled, "*A Medical Memoir on the Plains of the Indus*," in the Eighth Vol. of the Transactions of the Medical Society of Bengal, Appendix, No. 24, p. 81.

"*Animals.* Of the animals to be found in these regions, I shall at present say nothing. They must be looked on as rather influenced by, than exercising any influence on the Medical constitution of the country, which it is my more immediate object to illustrate. But I may be allowed to add that between specimens and drawings,* I have already made some advances, as opportunities have allowed, towards a sketch of the Zoology of the plain of the Indus, which I hope at some future time to render so far complete as to be not unworthy of notice."

It will be seen from this that so far from being, as Mr. Blyth has put forward, "nearly ignorant of Zoology," Dr. Lord projected at least a Zoological Memoir.

The Secretary submits that so far from any blame attaching to the Committee (whose labours have already been approved by the meeting) the Society are greatly indebted to it for its steady opposition to this "correcting" system.

The Secretary does not conceive it necessary to remark on that part of Mr. Blyth's paper which enters into the defence of naturalist editors and artists generally, as being an accessory discussion, quite uncalled for, and which would introduce a precedent tending to check the free expression of opinions in Committees, and moreover, because he conceives that Mr. Blyth has himself, in the above quoted paragraphs, amply shown that, if allowed, he would himself have rendered (and if the Secretary understands his expressions with respect to the sheep correctly) would even now render reference to the original drawings

* "I should acknowledge with thanks that several of these drawings which had been made previous to my joining the Mission, were immediately on my arrival placed altogether at my disposal by Captain Burnes."

indispensible; at least whenever they had been copied without the text explaining the corrections.*

Mr. Blyth finally complains that the animadversions were harsh and published without reference to him. The Secretary has already stated that he wholly dissents from there being any animadversions at all conveyed or intended. The Committee for the Burnes's drawings felt themselves bound to give on this occasion a full and distinct history of the matter (see Report) to exculpate themselves from an apparent neglect of 7,000 Rupees worth of outlay under their charge, and he believes the feeling was, that the only possible motive which could be assigned for Mr. Blyth's open contempt of the Society's orders and wishes for three years, might be perhaps pique at not being allowed to alter the drawings; and thus that the Committee deemed it proper to enter fully on that question.

"With respect to the non-reference to Mr. Blyth; what is alluded to in the memorandum is his proposal of correcting, which his present paper shews not to have been in the least overstated. The sequel is merely the statement of the Committee's grounds (acting for the Society) for rejecting that proposal, and Mr. Blyth himself gave rise to the publication of which he now complains by having been three years in default.

H. TORRENS,

September 3rd, 1845.

Vice-President and Secretary, Asiatic Society.
E. BLYTH, Esq.

SIR,—I am desired by the Committee of Papers of the Asiatic Society to acknowledge receipt of your letter of the 23rd August and to state in reply,—

That after an attentive consideration of it, the Committee have thought it right that it should be published in the Proceedings, as affording to the Society, and to the public in general, a full explanation of your views on the subject of the proposed corrections, and the knowledge that you by no means intended making these without a full account of them in the proposed text.

2. The Committee further desire me to state that they fully approve of the determination of the Committee for Sir Alexander Burnes's drawings to publish nothing as such, bearing the sanction of the Society's name, which were not exact copies of the originals as entrusted to it by Government.

Museum, 18th Sept. 1845.

I am, Sir,

Your's obediently,

H. TORRENS,

V. P. and Secy. As. Society.

Specimens of acorns and of fir cones from Darjeeling presented by
— Cockburn, Esq. were laid on the table.

The Curator of the Museum of Economic Geology and Geological and Minerological Departments had been unable, on account of illness, to prepare his report or to attend the Meeting.

The best thanks of the Society were voted for all the above presentations and communications.

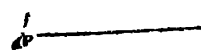
* Refer also to the Note submitted at the former Meeting, in which the special instance of the hocks of the Elephant is adduced.

श्रीश्रीदुर्गा ॥

—एसियाटिक सोसाइटी संस्कृत नागराक्षर ॥

महाभारतं आद्यक्ष ४ खण्ड	...	४०
महाभारतीयार्थगतसूचीपत्र आद्यक्ष		
४ खण्ड	...	६
नैषध आद्यक्ष सटीक १ खण्ड	...	६
हरिवंश आद्यक्ष १ खण्ड	...	५
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