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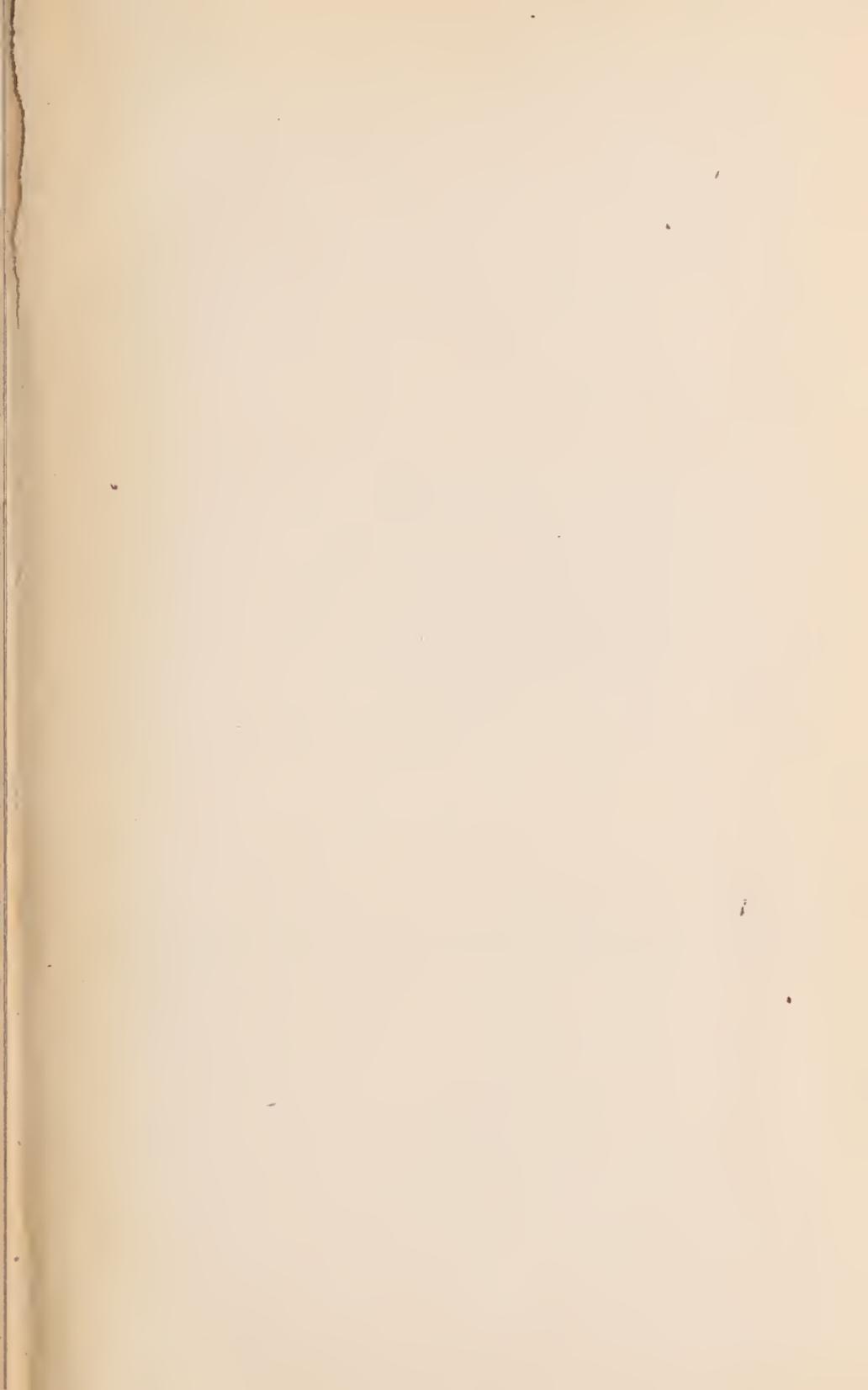
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Journal of the Asiatic  
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JOURNAL

OF THE

ASIATIC SOCIETY OF BENGAL,

EDITED BY

THE SECRETARIES.

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VOL. XVI.

PART I.—JANUARY TO JUNE, 1847.

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“ It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of Asia will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted; and it will die away if they shall entirely cease.”—SIR WM. JONES.

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# INDEX TO VOL. XVI.

## PART I.

	<i>Page</i>
Atmospheric Dust from Shanghae, Examination of some, forwarded to the Asiatic Society of Bengal, by D. L. Macgowan, Esq. M. D., Ningpo Hospital. By H. Piddington, Curator Museum Economic Geology, . . . . .	193
Account of the process employed for obtaining Gold from the Sand of the River Beyass; with a short account of the Gold Mines of Siberia. By Capt. J. Abbott, Boundary Commissioner, &c. . . . .	226
Archæology of India, Queries on the. By Rev. James Long, . . . . .	285
Bhâsha Parichêda, or Division of Language, A logical Treatise, translated from the Sunscrit. By Dr. E. Roer, . . . . .	157
Correct Facsimiles of Inscriptions, Instructions how to take. By Capt. M. Kittoe, 6th N. I. . . . .	366
Coal, being Volcanic Coal, On a new kind of, from Arracan. By H. Piddington, Curator Museum of Economic Geology, . . . . .	371
Caves of Burabur, Notes on the. By Capt. M. Kittoe, 6th N. I. . . . .	401
Damascus Blade of Goojrat, Process of Working the. By Capt. James Abbott, Boundary Commissioner, Lahore, . . . . .	417
Easiest method of taking and preparing Drawings for Lithograph, Hints on the. By Capt. M. Kittoe, 6th N. I. . . . .	368
Explosive Cotton, Memoranda on. By W. B. O'Shaughnessy, M. D, F. R. S., Co-Secretary Asiatic Society of Bengal, . . . . .	177
Hog kind, or Suidæ, On a new form of the. By B. H. Hodgson, Esq. . . . .	423
Hispid Hare of the Saul forest, On the. By B. H. Hodgson, Esq. . . . .	572
Inscription on a Gun at Moorshedabad, Translation of an, with remarks. By Major St. G. D. Showers, . . . . .	589
Inscription in the Nagarjuni Cave, Translation of the, . . . . .	594
Image of Buddha found at Sherghatti, &c. Note on an. By Capt. M. Kittoe, 6th N. I., . . . . .	78
Kalan Musjeed, Some account of the. By Lieut. Henry Lewis, Artillery, Deputy Commissary of Ordnance, and Henry Cope, Esq. . . . .	577
Language of the Goonds as spoken in the District of Seonee, Chuparah; Specimen of the; comprising a Vocabulary, Grammar, &c. By O. Manger, Esq. Civil Surgeon, Seonee, . . . . .	286
Local and Relative Geology of Singapore, On the, including Notices of Sumatra, the Malay Peninsula, &c. By J. R. Logan, Esq. . . . .	519

	<i>Page</i>
New or little known Species of Birds, Notices and Descriptions of various. By Ed. Blyth, Curator of the Asiatic Society's Museum,.....	117, 428
Notes, chiefly Geological, from Gooty to Hydrabad, South India, comprising a brief notice of the old Diamond Pits at Dhone. By Capt. Newbold,....	477
On <i>Teredo Navalis</i> , and a natural defence against its ravages. By Mr. Leh- mann: from the Transactions of the Scandinavian Naturalists of Copenha- gen, 1840. Translated and communicated by Dr. T. Cantor,.....	487
<i>Ovis Ammonoides</i> of Hodgson, Observations on the. By Capt. T. Hutton, F. G. S. ....	568
Pindree Glacier, Notes of an Excursion to the, in September 1846. By Capt. Ed. Madden, Bengal Artillery, 226 (with an Addendum,) .....	596
Pigmy Hog of the Saul forest, Postscript on the. By B. H. Hodgson, Esq.	593
Proceedings of the Asiatic Society for January, 1847, .....	81
————— for February, .....	201
————— for March,.....	375
————— for April, .....	499
————— for May, .....	497
Report on the Society's affairs,.....	89
Ruins of Anuradhapura, formerly the capital of Ceylon, On the. By Wm. Knighton, author of the "History of Ceylon," and late Secretary, Ceylon Branch Royal Asiatic Society, .....	213
Rock Temples of Dambool, Ceylon, On the. By Wm. Knighton, Esq,....	340
Refinage, on a large scale, by means of Nitre, of brittle or understandard Silver, for coinage purposes, and a ready mode of approximate assaying of Silver. By W. B. O'Shaughnessy, M. D. and F. R. S.....	557
Sequel to the Periplus of the Erythrean Sea, and on the country of the Seres, as described by Ammianus Marcellinus, Remarks on the. By James Tay- lor, Esq. Civil Surgeon, Dacca, .....	1
Steam Trip to the North of Baghdad, Journal of a, in April, 1846. By Lieut. Jones, I. N., .....	301
Sculptures of Bôdh Gyah, Notes on the. By Capt. M. Kittoe, 6th N. I. ..	334
Species of Wild Sheep, some further notice of the. By E. Blyth, Curator of the Asiatic Society, .....	350
Students of Arabic, Hints to; extracted from a letter by Col. Lockett, ...	373
Tremenheerite, a new carbonaceous Mineral, Notice of. By H. Piddington, Curator Museum of Economic Geology, .....	369
Temple of Triveni near Hoogly, An account of the. By D. Money, Esq. Bengal Civil Service,.....	393
Viharas and Chaityas of Behar, Notes on the. By Capt. M. Kittoe, 6th Regt. N. I., .....	272
Vedas, Report on the, .....	505
Zillah Shahabad, or Arrah, Geological Notes on. By Lieut. W. S. Sherwill,	279

## INDEX TO NAMES OF CONTRIBUTORS.

	<i>Page</i>
Abbot, Capt. J. Account of the process employed for obtaining Gold from the sand of the River Beyass ; with a short account of the Gold Mines of Siberia. ....	226
—————, Process of working the Damascus Blade of Goojrat. ....	417
Blyth, E. Esq. Notices and Descriptions of various new or little known Species of Birds. ....	117, 428
—————, Some further notices of the Species of Wild Sheep. ....	350
Cantor, Dr. T. On <i>Teredo Navalis</i> , and a natural defence against its ravages. ....	487
Hodgson, B. H. Esq. On a new form of the Hog kind or <i>Suidæ</i> . ....	423
—————, On the Hispid Hare of the Saul forest. ....	572
—————, Postscript on the Pigmy Hog of the Saul Forest. ....	593
Hutton, Capt. T. Observations on the <i>Ovis Ammonoides</i> of Hodgson. ..	568
Jones, Lieut. Journal of a steam trip to the North of Baghdad. ....	301
Kittoe, Capt. M. Instructions how to take Correct Facsimiles of Inscriptions. ....	366
—————, Notes on the Caves of Burábur. ....	401
—————, Hints on the Easiest Method of taking and preparing Drawings for Lithograph. ....	368
—————, Note on an Image of Buddha found at Sherghatti. ....	78
—————, Notes on the Sculptures of Buddha Gaya. ....	334
—————, Notes on the Viháras and Chaityas of Behar. ....	272
Knighton, W. Esq. On the ruins of Anurádhapura. ....	213
—————, On the Rock Temples of Dambool, Ceylon. ....	340
Lewis, Lieut. H. and H. Cope, Esq. Some account of the " Kalán Musjeed." ..	577
Lockett, Col. Hints to Students of Arabic. ....	373
Logan, J. R. Esq. On the Local and Relative Geology of Singapur. ....	519
Long, Rev. J. Archæology of India, Queries on the, ....	285
Madden, Capt. E. Notes of an Excursion to the Pindree Glacier in September, 1846. ....	596
Manger, O. Esq. Specimen of the Language of the Goonds as spoken in the District of Seonee, Chuparah. ....	286
Money, D. Esq. An account of the Temple of Triveni near Hugly, ....	393
Newbold, Capt. T. Notes chiefly Geological, from Gooty to Hydrabad. ..	477
Piddington, H. Esq. Examination of some Atmospheric Dust from Shanghai, forwarded to the Asiatic Society, by D. L. Macgowan, Esq. ....	193
—————, On a new kind of Coal, being VOLCANIC COAL, from Arracan. ....	371
—————, Notice of Tremeneherite, a new carbonaceous Mineral. ....	369

	<i>Page</i>
O'Shaughnessy, Dr. W. B. Memoranda on Explosive Cotton, .....	177
—————, On the Refinage on a large scale, by means of Nitre of brittle or understandard silver for coinage purposes; and on a ready mode of approximative assaying of silver, .....	557
Roer, Dr. E. Bháshá Porichéda, or Division of Language; a logical Treatise, translated from the Sanscrita, .....	157
Sherwill, Lieut. W. S. Geological Notes on Zillah Shahabad, .....	279
Showers, Capt. St. G. D. Translation of a Inscription on an Gun at Moor- shedabad, with remarks, .....	589
Taylor, J. Esq. Remarks on the Sequel to the Periplus of the Erythrean Sea, &c. ....	1



# LIST OF PLATES.

## PART I.

---

<i>Plates.</i>	<i>Page</i>
No. I. ....	78
II. ....	222
III. ....	224
IV. ....	267
V. ....	272
VI. ....	273
VII. ....	340
VIII. ....	408
IX. ....	409
X. ....	411
XI. ....	418
XII. ....	423
XIII. ....	427
XIV. ....	573
XV. ....	} 578 & 579
XVI. ....	
XVII. ....	
XVIII. ....	
XIX. ....	

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# E R R A T A.

## PART 1ST.



<i>Page</i>	<i>Line</i>	
301	12	for Triunba read Trúmba.
„	19	for Sherí at el Beitha read Sherí 'at el Beitha.
302	4	for Tarimyer read Tarmíyeh.
„	12	for Jeddiah read Jedídah.
„	18	for Jeddiah read Jedídah.
303	10	for After “When it bore East” read On the right bank, &c.
„	17	for Kھیat read Khayt.
„	24	for Jeddiah read Jedídah.
„	3	for (in note,) Keif read Kúf.
„	6	for Nhar read Nahr.
304	8	for bending read trending.
„	18	for Dojin read Doj'm.
„	3	of note, Seghimeh read Seghirmeh.
„	4	for Sir read Sú, and for Tau read Táúk.
„	67	for Hamria read Hamrín.
„	11	for Hamrool read Hamrín.
„	13	for Physens read Physcus.
„	„	Last of note, Opio read Opis.
305	23	for Daláhee and Lagros read Daláhú and Zagros.
„	24	for Malwujep read Malwíyeh.
306	28	for approached read approach.
„	29	for was read is.
307	1	for Siel el Azeez read Sid 't Azeez.
308	3 & 5	for Maluryeh read Malwíyeh.
309	9	for passing read passes.
„	25	for Malwújeh read Malwíyeh.
313	19	for Hebla read Kebla.
315	3	for round read mound.
„	6	for Shiragoor read Shirazoor.
„	2	of note, “Ustrima” read “Ustrina.”
„	13	for Sammariah read Samarrah.
„	18 & 22	for Dina read Dúra.
„	28	for Sammariah read Samarrah.
316	19	for this read thus.
„	24	for present read personal.
317	9	for Yet alij read Tel alij.
„	10	for Apis read Opis.
„	22	for Mahrwan read Nahrwán.
„	24	of note, for it read is.
„	29	for Zellar read Tellúl.
„	37	for Malwryeh read Malwíyeh.
318	17	for had read hove.
319	16 & 17	for after the numerals ° and not t.
„	16	for Mahirgeh read Malwíyeh.

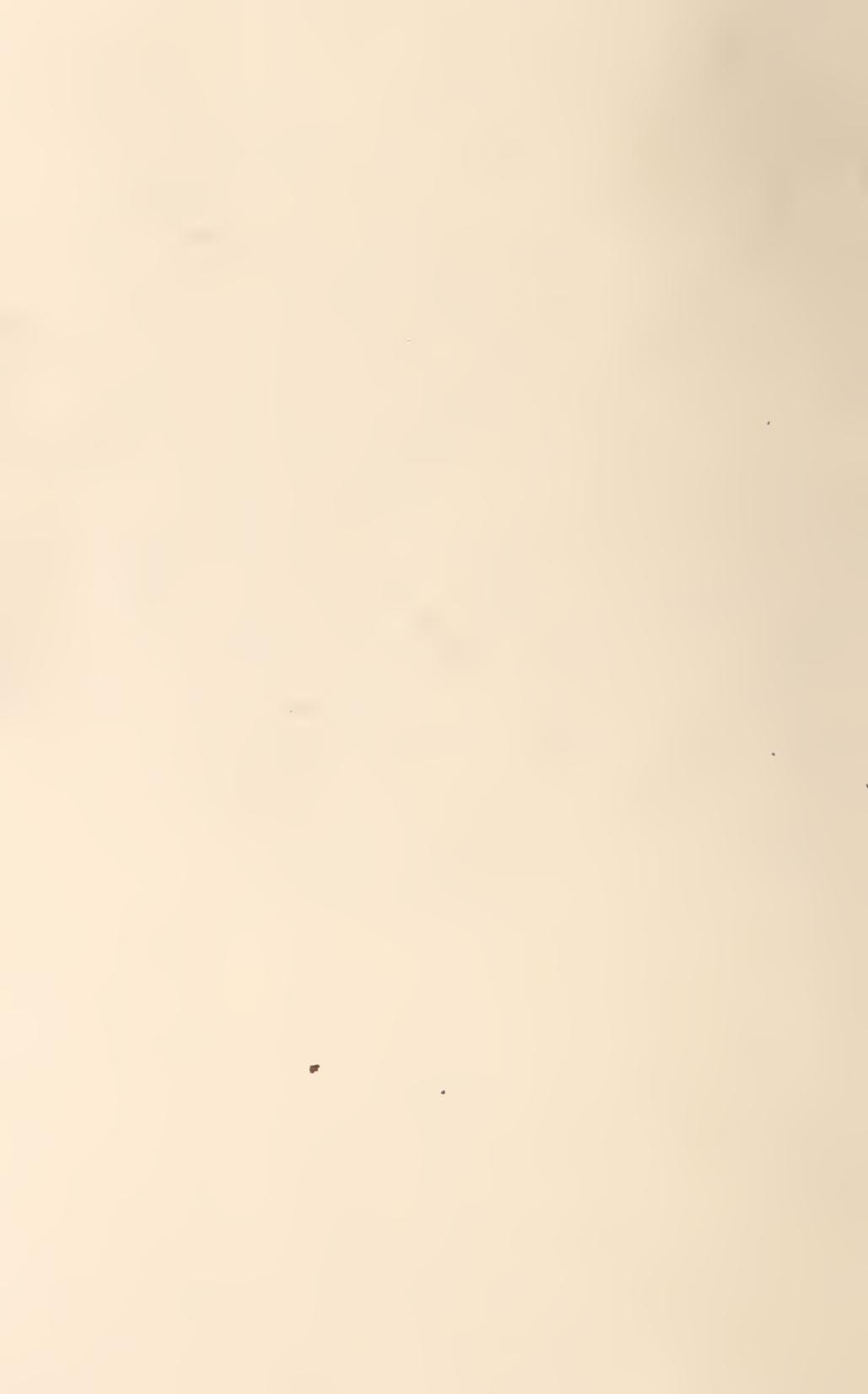
Page	Line	
319	21	for Abri Delif & Maluryeh read Abú Delif Malwíyeh.
„	24	for Majainmah read Majammah.
„	25	for On the east side, &c. read On the east side.
„	26	for Mahrwan read Nahrwán.
322	12	of note, for analysis read anabasis.
„	23	for M. Batta read M. Botta.
323	12	for Asperiall read Aspinal.
„	21	for “Durn” read “Dum.”
325	25	for Tekriths read Tekritlís.
326	11	for “Al’arab” read “Al’Arab.”
„	14	for Tekrith read Tekritlís.
„	24	for a Scorpii read $\alpha$ Scorpii.
„	13	for Khanisah read Kanísah.
327	2	for Arnin read a ruin.
„	3	for Kamsah read Kanísah.
„	4	for “El Tet’bha” read “El Fet’hha.”
„	6	for S. W. read N. W.
„	4	of note, for (Tageit) read (Tagrit).
328	1	for easting read casting.
„	13	for Khalidj—fresh sentence, Observing, &c.
„	24	for Extending to the Eastd. read Extending to the Eastd. from it ;
„	1	of note, for “E. Seliva” read “El Selwa.”
329	2	for Mejiris read Nejiris.
„	„	for Nejin read Nej’m.
„	6	for gazing read grazing.
„	8	for tints read tents.
330	6	for “El Tettha” read “El Fet’hha.”
„	9	for Makhal read Mak’húl.
331	31	for Maluryah read Malwíyeh.
„	34	for Tholush read Tho’kyeh.
332	11	for Trumbee read Trúmba.
„	12	of note, for Al Athus read Al Athur.
„	14	for Bukhtyari read Bakhtiyári.

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ADDITIONAL ERRATA IN PART 2D.

614	16	for POTAMIDA read POTAMIDE.
621	23	for <i>biporcatus</i> read <i>porosus</i> .
623	note,	for <i>Geckotidæ</i> read <i>Geckonidæ</i> .
643	3	for on the Pinang read in the Pinang.
656	5	for <i>Polycopodium</i> read <i>Polypodium</i> .
909	14	for 3 $\frac{3}{8}$ inch read 0 $\frac{3}{8}$ inch.
921	30	for HEXAHONOTUS read HEXAGONOTUS.
927	6	for <i>catenularies</i> read <i>catenularis</i> .
929	5	for Dryiphis read Dryiophis.
1066	11	for <i>twelceth</i> read <i>twelth</i> .





JOURNAL  
OF THE  
ASIATIC SOCIETY.

APRIL, 1847.

*Journal of a Steam Trip to the North of Baghdad, in April, 1846, with notes on the various objects of interest met with. By Lieut. JONES, I. N. (Forwarded by P. MELVILL, Esq. Officiating Under Secretary to the Government of India.)*

Three years having elapsed since our former ascent of the Tigris above Baghdad, and anticipating from the early rise of the water a more favorable season and better success than we experienced before, arrangements were made accordingly for ascending the river early in March, but the presence of the vessel being again required at Basra, our departure was delayed until the 2d April, when the river had become considerably more rapid from the high rise having already set in. We however left Baghdad on the above day, with one month's provision, 12 tons of coal, and 9 tons of fire-wood fuel. Draught of water with the above stores on board, 3 feet 10 inches, aft, and 3 feet 5 inches forward; weighed from our moorings at 9-55 A. M., with two boats in tow, and passing through the Bridge of Boats, reached Triumba and Kathemein, the former at 10-35, the latter at 10-55.

The banks of the river at this time present a beautiful appearance, the gardens exhibiting a diversity of trees of variously tinted foliage, and a delightful fragrance pervades the air from the now opening orange blossoms. The day is cool and pleasant, but a moderate north wind, though very refreshing, somewhat retards our progress. The river too is rising. At 1-45 arrived at Sheri at el Beitha on the right bank—2-33

Tel Goosh,\* a mound on the right bank, bore west. The country to the north of Tel Goosh between Khán Suweidiyah and the river, is known by the same name as the Khán, but the Khán is also sometimes termed Tarímeyh, from a lake situate in an old bed of the Tigris called Sh'taitha. This is now dry and is reported to be of the same width as the present river. 5 P. M. Khán Suweidiyah bore west, and Jedidah E. N. E. Many mounds of considerable size are to be seen south of Khán Suweidiyah, probably the Tel Kheir of Lynch's Map, but I searched in vain for the south end of the Sh'taitha † (or as it is misprinted in Arrowsmith's copy of Lynch's Map, the Shat Eidha) which is represented to join the present river near this spot. I am informed however that it is lost in the desert near this. Arrived at the Khán of Jeddiah at 5-3, but finding the stream very rapid near it, proceeded on for 20 minutes and anchored near the old Khán of the same name. The gardens to the north of Baghdad terminate abruptly about two miles above Kathemein on the right bank, but on the left, after leaving Móádhem, scattered villages and date groves are seen, as high as Tel Goosh; from whence to Jeddiah the country, at present, is highly cultivated with wheat and barley.‡ On both banks, mud enclosures are met with every two or three hundred yards, in which the cattle used for the purposes of irrigation are kept, and numerous round isolated towers affording shelter to the cultivators from marauding parties, attest the imbecility of the present Government. The old adage of the sword in one hand and the plough in the other is here literally verified.

\* Several mounds and lines of canals exist in this neighbourhood. According to Baillie Fraser, Mr. Ainsworth conceives that he has discovered in them the site of the Sitace of Xenophon. Major Rawlinson however, deems the present suburbs of Baghdad on the west side of the Tigris, to stand on a part of the ancient Sitace; indeed the recent discovery of large masses of brickwork on this spot, bearing the Babylonian cuneiform character, in October last year, when the river was lower than it was ever remembered to have been, would seem to identify it as the site of some very large city. The great extent of the ruins, the size of the bricks, the great depth at which they are found (24 feet below the surface of the soil) justify, in my opinion, Major Rawlinson's conclusions and above all the cuneiform characters on each alternate layer of bricks, point out, clearly the pains taken in the construction of the buildings, rendering the supposition that they had been brought originally from Babylon highly improbable.

† Could this name, although at present an Arabic term signifying the "old river," be a corruption of the early Arabs, from the name of the Town or district of Sitace?

‡ The land adjoining Jedidah, Howesh, Mansúriyeh, Sadiyeh and several other villages, although washed by the Tigris, is irrigated by cuts from the Khális canal.

Received a visit this evening from the Governor of Sámarráh, who has been summoned to Baghdad on business, but has obligingly given me a letter to his vakeel.

Strength of the current where we are at anchor was found  $2\frac{1}{2}$  knots per hour, though a few hundred yards lower down it probably amounts to double this rate.

*April 3d.*—Left our anchorage at 5-38 A. M., the river having risen during the night 8 inches, with a cold northerly wind. Thermometer  $43^{\circ}$ ; passed the villages of Howeish and Mansúriyeh, the former at 6-40, the latter at 8-15, when it bore east on the right bank and west of Mansúriyeh; the Tarmiyeh ancient canal leaves the Tigris, and another large canal bearing the same name, and said to be of more ancient date, is seen about one and a half miles below. This has now been long dry, but the northern canal, during the high state of the river, still receives a portion of the Tigris and is lost in the marshes west of Kathemein. Its direction by compass was observed to be  $244^{\circ}$ . The river near Mansúriyeh is very broad, but broken by islands. A khiyat\* or wall is situated a little to the north of the Upper Tarmiyeh, having an old Khán in ruins close to it. 9-11 passed Sadiyah village and grove of date trees; the country every mile becoming more elevated, and the valley of the Tigris beginning to assume a distinct form. Reached the village of Sindiyah at 10-33 and received 12 hours' fuel. Remained here until noon to obtain observations, which place the village in Lat.  $33^{\circ} 52' 50''$ . The whole of the gardens and date groves, from Jeddiah to this place are irrigated by the Khalis† canal, which and the Dejeil, are the only canals of importance that the Pachalic can now boast of. A sad picture for

\* This is represented as resembling the Khali sidd 'l Nimrud, or Median Wall, in construction. It is stated to run in a S. W. direction and to be lost in the marshes near Ak-Keif. I think it very probable from the information obtained, that many walls of the same description as that "par excellence" termed "the Median" will be found to exist in this part of the country. The term Khiyut or "lines" is here universally employed for "ramparts or walls" and differs materially from that of Nhar adopted in reference to canals. The Khali is however the longest and most northerly and therefore the most important.

† This canal is a cut from the Diyála where it breaks through the Hamrin range. It pursues a S. W. course a short distance north of and nearly parallel to the river Diyála; many villages are situated on its banks and numerous fine date groves are watered by it in its course to the Tigris, which receives its superabundant waters after a severe winter only. At other times it is lost in irrigating the country around Sadiyah, Mansúriyeh, Howeish and Jedidah.

contemplation is afforded by the remains of so many noble works of the same order lying scattered around neglected and abandoned; showing at a glance without the aid of history, the once flourishing state of this classical province.

Left Sindiyah at 12-10 P. M. and at 1-35 observed it to bear  $137^{\circ}$ . At this spot the high cliffs forming the valley of the Tigris abut on the left bank of the stream, and the large canal Nahrwán is seen above them about half a mile distant, bending to the S. eastward. From this point the river runs in a more westerly direction, and at 3-10 passed some high cliffs (assumed at 50 feet) on the summit of which a part of the Nahrwán is observed to have been cut away by the force of the current encroaching on and undermining the soil on which it stands. The cliffs forming the right bank of the river are distant from this spot about five miles. A long alluvial Hawi\* projects from them to within 100 yards of the left bank. This space only is now occupied by the river. The tomb of Imam Syed Mahomed bears from this point  $262^{\circ}$ . This also is the general direction of the river to the mouth of the river Atheim. The Nahrwán is also known here by the name of El Dojin. 3-35 anchored off a small branch of the Atheim to obtain observations.† The western branch is larger, and is two miles distant from this. It now appears a considerable stream, but when I passed it in March 1843, it

\* Alluvium deposits in the valley of the Tigris are thus styled.

† The western or larger mouth of the river Atheim is  $7^{\circ} 9'$  west of Baghdad by these observations. Its sources are in the Seghimeh range of Kurdish mountains. The Kisseh Sirat Kerkuk, the stream at Táú and the Safidrud unite their waters in about Lat.  $34^{\circ} 40'$  north, and in the meridian of Baghdad from whence, under the name of the Atheim it pursues a course a little to the westward of south, through the Hamria range, and finally falls into the Tigris in Lat.  $34^{\circ} 00' 80''$ . Where the Atheim breaks through the Hamria, the remains of a strong "Sidd" exists, of great antiquity. This "Sidd" formerly blocked up the natural course of the stream, diverting it into two ancient canals, named the Nahr Batt to the north, and the Nahr Rathán to the south. These canals irrigate the country between the Hamrool and the Nahrwán, and contribute materially to swell the waters of the latter.

There can be little doubt, but that the Atheim is the Phyeus of Xenophon, but the position of its junction with the Tigris in the days of the learned Greek, must be sought for, I think to the south of its present confluence. A line carried south a little westerly from the present delta of the Atheim, to the dry bed of the Sh'taitha, would in all probability not only mark the site of its former confluence with the Tigris, but might pass over, or near to some extensive ruins, in which might be traced some features that would identify them with the lost Opio.

deserved little notice, but the heavy rains expericneed this winter throughout the Pachalic, have increased its importance. After passing the Atheim, the river becomes more tortuous, a long reach extending to the S. W. leads you to an opening of considerable extent, which I am told is the mouth of the Sh'taitha, and supposed to be the old bed of the Tigris (see note of April 2nd). We passed it at 6-15 and stood towards Khán Tholiyah, in a northerly direction. Anchored for the night at 6-32 near two islands which here bisect the stream.

The alluvial soil now gives place to banks of pebbles and shingle, occasionally mixed with conglomerate masses, but the high cliffs still exhibit alluvium, mixed with many strata of sand, and in some places red clay. A salt stratum is observed near the present margin of the stream, in which sprigs of the Tamarisk flourish, but the rest is bare and much eroded, not only by the Tigris, but from the numerous torrents that find their way from the high lands contiguous to the Hamreen range. The Hawis, or alluvial deposits, formed in the valley of the Tigris, are now in a high state of cultivation. Obtained observations both for longitude and latitude, the latter dedueed from the M. A. of\* Antares was found to be  $34^{\circ} 00' 19''$  N.

Sunrise, April 4th, from the masthead observed the true bearing of Khán Tholiyeh to be N.  $00^{\circ} 45'$  W. At the same time the following angles right and left of it were taken by sextant; angle right, high peak of Daláhee on the great Lagros range  $14^{\circ} 25'$ ; angles left of the Khán, Minaret in the village of Beled on the Dejeil  $87^{\circ} 32'$ ; Malwujeh, or spiral tower above Samarrah  $53^{\circ} 16'$ ; Tomb of the Imams in Samarrah  $55^{\circ} 54'$ ; Khán Mazrukji  $63^{\circ} 21'$ ; Imam Syed Mahomed subtended an angle of  $43^{\circ} 34'$  left of Beled, and the Minaret of Sumeichah village  $52^{\circ} 9'$  left of Syed Mahomed. From this station,† the mouth of the old bed of

\* Both Dr. Ross and Capt. Lynch place the northern mouth of the old bed of the Tigris about 20 miles further to the west; but I am assured from very good authority, that its true position is where I assigned it. There may however have been a branch further to the westward, and it is hazardous to differ with two such observant travellers as those I have quoted, but the nature of the soil changing from hard sandstone to alluvium in this vicinity, it is natural to infer that a deep and rapid stream like the Tigris would select the first yielding soil it met with for a bed to convey its pent up waters to the sea.

† Observations (for longitude) of  $\alpha$  Orionis, place this station  $11' 16''$  west of Baghdad, and as Khán Tholiyeh bore north, it also lies on the same meridian.

the Tigris or El Sh'taitha bears S. S. E. one and half miles distant, which would make the bottom of the reach south of Khán Tholiyeh, in latitude  $33^{\circ} 59'$  nearly, consequently if my latitude be correct (which I have no reason to doubt) the delineation of this part of the river in Lynch's Map is scarcely carried far enough south. It is difficult however to speak with certainty, as the map in my possession is on a very small scale, deduced by Arrowsmith from Lynch's original of 12 inches to a degree. Capt. Lynch's fixed stations are however very accurately determined. During the night the river rose 8 inches, occasioning the banks to fall in with loud reports. Thermometer  $42^{\circ}$  at day-break.

Left our anchorage at 6-9 A. M. and crossed over to the Hawi on the left bank and received some fuel; completed at 9-15 and pursued a northerly course towards Khán Tholiyeh.\* I may here mention a trait of Arab rapacity and general character. Some of the Jebour had been assisting us in carrying our fuel, and I presented them with some ball cartridge in return; scarcely however had they reached the party to whom they were to have been presented, when one and all made a general scramble.—The person to whom I entrusted them finding it now impossible to distinguish those who had earned the cartridges, threw them down, and such a scene ensued as could only be told by any unfortunate traveller who might fall into such hands, as assuredly his garments or any other property he might possess would be thus contended for; swords were drawn, and stieks of no ordinary dimensions whistled through the air, and when we left, the excitement appeared as if it would last the entire day.

The stream is now becoming more rapid from the increased declivity of its shingly bed; as we approached the neighbourhood of Khán Tholiyeh, our progress therefore was proportionably slow. At 9-50 the Khán bore N. E. one and half miles. From this the river pursues a westerly direction to Khán Mazrakji, and from thence to El Ghaim,† a little more northerly. At noon, Beled on the Dejl bore  $182^{\circ}$ , Tholiyeh Khán  $89^{\circ}$ . At 1h. a tomb in the body of Nahrwán, called Imam Syed Hussain, bore north one and half miles distant. A small branch of the Nahrwán is also called

\* A caravanserai on the road to Samarrah from Baghdad.

† Properly El Káim, but is pronounced as I have written it.

here Sié' el Azeez;\* at the above time Beled bore 169°, and Tholiyeh 99°. Khán Mazrakji, a place of accommodation for pilgrims on the road to Samarrah north, and at 4 P. M.—N. E. This is the nearest point to the Khali Sid'l Nimrud or Median Wall. I visited it in 1843 but it is so well fixed and described, both by Capt. Lynch and Dr. Ross in the Journals of the Royal Geographical Society, that I need not further allude to it. 5-45 came to an anchor for the night in exactly the same spot as we spent the night on three years ago. I was not sorry when the declining rays of the sun obliged us to stop, for I felt much fatigued, having been on my legs the whole day; indeed nothing but the greatest perseverance and attention to the steerage of a steam vessel through such intricate navigation as we have had to-day, could ensure her making any progress. From Khán Tholiyeh, the bottom has changed to a hard shingle, over which the current runs, by trial, at the rate of  $6\frac{1}{2}$  geographical miles per hour. The bed of the river is full of numerous islands and shingle flats, and as there is in this season of the year, but one channel of sufficient depth which receives the whole stream, it occasions, where it is thus confined, a considerable fall or rapid, some of which, notwithstanding, a heavy S. E. wind set in, enabling us to make sail, we could scarcely surmount. The engines indeed appear to be paralyzed, when on the summit of a rapid, as the revolutions decrease from 29 to 23. This I can only account for by the weight of the vessel in her ascent, acting against the momentum of the paddles; in fact the small diameter of the wheels is not calculated to lift, as well as to propel, the vessel up an inclined plane.

The country passed through to-day has been beautiful in the extreme. The undulating hills forming the valley of the Tigris are now clothed in their spring garments, waving grass intermingled with flowers of every hue, forms a rich landscape, which the eye is unaccustomed to meet in the alluvial plains below. Perpendicular cliffs, composed of masses of conglomerate, laid bare by the abrasion of the stream, seeming to threaten the destruction of the vessel should they fall, are happily contrasted with their carpeted summits. The Havis of alluvium projecting from the various points of the valley of the Tigris are highly

\* This is the south branch or feeder of the Nahrwán. It is now much broken by the encroachments of the river. I have throughout erroneously termed the branch at El Ghaim the south branch.

cultivated, by the Jebour Arabs on the east and Mahjamma on the west. Obtained the following bearings and angles from the masthead when at anchor. True bearing of the Maluryeh near Samarrah  $328^{\circ}$ . El Ghaim,\* at the head of the south branch of the Nahrwán  $19^{\circ}$  left of the Maluryeh. Tombs of the Imams at Samarrah  $3^{\circ} 20'$  left. Khán Mazrakji right  $110^{\circ} 40'$ . S. W. angle of the old fort of Qádésiyeh left  $15^{\circ} 33'$ . Shortly after sunset the south wind fell and heavy rain followed with thunder and lightning, but before morning the sky again became clear.

At sunrise, on the 5th resumed our route, contending against a heavy stream of 6 knots an hour, and occasional slight rapids in the narrow channels. Reached our fuel at Qádésiyeh at 7h. 48m.

While taking in wood I visited the remains of the old fortress and city of Qádésiyeh,† situate about one mile from the river. I never had so agreeable a walk. The country is literally covered with wild grass of every description in full blossom. Flowers of every tint and hue were crushed beneath our footsteps, and the very air was impregnated with their odour. It is of an octagonal form, with round towers at each angle, between which 16 buttresses or bastions are placed,  $37\frac{1}{2}$  paces distant from each other. A gap exists in the centre of either side, which no doubt, held the gates of the fortress, but all traces of them are now gone. The wall by measurement was originally 50 feet in thickness, and is at present about 25 feet high. Its interior face must have comprised an entire range of vaulted chambers, one of which is still entire and affords a good specimen of the whole structure. It is built of sun-dried clay bricks 18 inches square and 5 thick. No buildings, at present, exist within its area, but on minute examination, at one-third the distance across the interior from its western side, I discovered the traces of a wall, which extended from the southern ramparts, in a line due north, for 1240 paces. This line of wall at

\* See note page 305. This I have erroneously termed the south branch instead of the one referred to in page 305.

† A rough plan accompanies these notes.

‡ Fraser in his *Mesopotamia and Assyria*, describes the distance as 10 to 12 yards. How he has fallen into this error I am at a loss to conceive. If his distance were correct the circumference of the walls of this large fort would be, in round numbers, but 1400 yards, whereas from actual measurement by pacing, I made its diameter alone 1500 yards, its circumference therefore as a regular octagon would amount to nearly 4500 yards, or above two and half English miles.

the distances along it of 700 and 790 paces, and at its termination, had other walls connected with and extending from it, at right angles, or due east, for 450 paces, where they break off abruptly, for I could trace them no further. A perfect oblong enclosure of 250 paces long from north to south and 100 broad, occupied the space between the northern parallels. A high mud rampart appears to have surrounded the town, leaving a space between it and the outer defences of 70 feet wide. The great canal of the Nahrwán is seen stretching far to the eastward and passing within 200 yards of the north-east angles of the fort. A canal or cut from the Nahrwán, about one mile north-west of the city, watered the country between it and the Tigris and ran along the west face of the fortification, throwing out a branch in a S. S. E. direction at a short distance below its junction with the Nahrwán. This offshoot entered the fort at its N. W. angle and ran in a S. S. E. direction to the angle of the city wall, where it bifurcated, one branch passing along the north face of the city, while the other, running parallel with the western wall for 640 paces, suddenly turned to the east through an opening in it. After supplying the town, I presume, both this and the northern branch must have been employed in irrigation. It is probable indeed, that the whole space between the walls of the city and the outer defences contained gardens, for no mounds of any size or extent are to be met with which could lead us to conclude that buildings of any importance existed there.

From the S. W. angle of Qádésiyeh\* observed the following bearings. Malwújuh Tower 328°, Khán Mazrakji 97°, Ghaim Tower 307°, Istabolat ruins and mouth of the Dijeil canal 267°. There can be no doubt, I imagine, that this city was one of importance during the flourishing period of the Nahrwán, and probably owes its decline and subsequent abandonment to that vast canal being allowed to fall into decay. A small oblong enclosure, termed El Sanam, existed too on the summit

\* Qádésiyeh is 26' 27" west of Baghdad. Mr. Rich, in his *Kurdistan and Nineveh*, quoting from Gibbon, imagines this to be the Assyrian city of Cardesia, but Col. Taylor, a profound Arabic scholar, deems it the site of an early Arab town. Mr. Fraser in alluding to it in his *Mesopotamia and Assyria*, wrongly terms it a Septagon instead of an Octagon, and has unaccountably placed it on the west side of the Tigris, whereas it is on the east bank. I presume him to have confounded Istabolat, which is on the west bank, with Qádésiyeh, though his description in other respects certainly appertains to the latter. See his work, p. 159.

of the cliffs, now washed by the Tigris, but half of it at present remains, the river having swept the remainder away—the walls however on the face of the cliffs are plainly distinguishable, and unlike Qádésiyeĥ itself, are built of fine kilu-dried bricks, but bear no inscription or characters. The lower half of a statue (whence its name) of black stone similar to those of Egypt, was found here some years ago, and is now in the possession of Dr. Ross. Lat. of Qádésiyeĥ by a meridional observation of the sun,  $34^{\circ} 4' 38''$ .

On the high land forming the western valley of the Tigris and immediately opposite, or due west of Qádésiyeĥ, the remains of a neat square town of some extent are met with. It is called Istabolat. The streets and buildings can be traced by a multitude of mounds and broken brick walls in well designed order, running parallel to, and at right angles from each other. A ruined wall of kiln-dried bricks and a ditch surround it. I had not time to visit this interesting spot, but the note here given is from memory, having previously examined it in 1843. The Dijeil\* canal leaves the Tigris close to this. The northern and more ancient mouth is now dried up. This canal, pursuing a S. E. direction and passing the end of the Median Wall, the villages of Harbah and Sumeichah, is finally lost near the Tarmiyeh water. The country is now considerably more elevated.

Having obtained the noon observation, continued our course at 12 hours 15 minutes, passing the head of the Dijeil and Istabolat, and 12-45 El Ghaim,† a solid quadrangular tower situated at the head of the south branch of the Nahrwán. It is certain that this magnificent canal had two large branches from which it received its supply of water, and by some it is imagined that a smaller canal, called the Nahr Hafú, having its mouth at the foot of the Hamrin range, where it is severed by the Tigris, might be called a third. The Nahr Hafú however, is much smaller than the other two branches. It joins the centre one near the Kantara el Resasa‡ from whence this main branch pur-

\* The Dijeil and the Khalis are the only canals of importance now existing in the Baghdad Pachalic. They exhibit a lamentable contrast with the numerous catalogue of antiquity.

† See note, p. 305.

‡ This gigantic canal has long since fallen to decay. It can still be traced for 300 miles, and the ruins of former cities, met with on its margin, attest the flourishing state of Irak during its existence. Vast swamps and extensive lakes, in all probability origi-

sued a S. E. direction, meeting the branch from El Ghaim which flowed in a more easterly direction, a little above the junction of the Atheim with the Tigris. From this spot they became one united stream, considerably more elevated than the surrounding country, and pursuing an uninterrupted course to the S. eastward over the "Atheim," the Diala and the present bed of the Tigris, it formerly fertilized the immense plains of Irak by its many ramifications to the neighbourhood of the Persian Gulf, and opening\* to the south of El Ghaim, I have since heard is a duct of this splendid work. In March 1843, I visited the spot marked out as the junction of the two larger branches, where the remains of a "sid" or "band," still exist. A town must also have stood on this site formerly, for the ground was strewn with the remains of buildings, glass and pottery.—Opis is represented by some to have occupied this position, but I hardly think that opulent city could have left no further traces of its existence than the insignificant remains to be here met with at present.

From El Ghaim to Samarra the ascent of the river is very difficult. The fall or inclination of the surface of the stream is plainly distinguishable to the eye opposite to El Ghaim; a single fall took us 40 minutes to overcome, and I fear, had we not been assisted with a westerly wind which enabled us to make sail, our further progress would have been stopped.

Reached Samarra,† April 6th, at 7 A. M. and remained until 9-35 to arrange about our fuel. I did not however receive any more on board as the vessel is already much too deep, purposing to use coal to the next station at Dúr, when the fuel we have at present on board is finished.

The modern town of Samarra, situate on the cliffs forming the left nally caused by its own decline, surround it in every direction, converting this once luxuriant and highly cultivated province into hot beds of malaria and fever. Its dry bed is now used as a high road by travellers and caravans on account of the protection afforded in the recesses of its mutilated banks, from any of the numerous parties who may be out in search of plunder.

\* Sidet Aziz. See note, page 305.

† In the ninth century Sumere or Samarra became with a slight change of name, the royal residence of the Khalifs of the house of Abbas. Gibbon, Vol. 3, p. 225.

The Roman army under Jovian encamped here after marching and fighting a long summer's day.—*Ibid.*

bank of the Tigris, is now encircled by a strong wall built at the expense of the influential Shiáh population of India. When I visited it in 1843 this wall was just begun. The town was before open and suffered much from the demands of the Bedoins. They used to encamp outside and threaten to pillage the place if their demands were not complied with. It however is now secure and free from such visits. But a great oversight has been committed in not extending the walls to the margin of the cliffs overlooking the river, for the Bedoins could at any time destroy the aqueduct which conveys the water to the town, and thus by cutting off the supply of this necessary article, compel the inhabitants to come to terms. It is however on the whole a miserable town and owes its importance chiefly to two handsome tombs;\* surmounted by cupolas, the larger being that erected over the remains of Imam Hussain Askarí. It has recently been repaired, and, I believe, was formerly covered with gold similar to the cupolas of Kathemcin, Kerbella and Nejáf, but is now perfectly white, the present funds not being sufficient to give it its former splendour. The smaller cupola, or that of Imam Mehdi, is a very neat cupola, beautifully enamelled with yellow and white flowers on a bluish green ground. Imam Mehdi was the last of the Imams revered by the Shiáhs, and is said to have disappeared from the earth at this spot. A large hole over which this edifice is erected points out the locality, and from which it is believed he will at some future period present himself. It is therefore much venerated by Mahomedans, especially by the Shiáhs. Pilgrims† from all parts of Persia resort to this place annually. I am informed that 10,000 is the yearly average of the number of devotees to this sacred spot, but am inclined to believe this amount is even now under-estimated. No tax is here levied on the Pilgrims, but the proprietors of the Kháns and houses in which they reside, pay to Government 2 Riego Piastres for each individual. The modern town comprises about 250 houses, with a Sunni population slightly under 1000, who possess among them barely 100 stand of arms.

\* See sketch accompanying these notes.

† Since the occupation of the holy cities of Kerbella and Nejaf, by the Turks in 1843, the influx of pilgrims into the Baghdad Pachalic has much decreased. The security afforded at present by the mild government and toleration of Nejib Pasha, will however soon restore the confidence of the Persian devotees, and moreover materially add to the annual revenue of the province, which diminished considerably after the supposed ill-timed policy of the Pasha.

The town is farmed by Government this year to the present Zábít Seid Hussain, for 280,000 Riego Piastres, or a sum nearly equalling to £660 sterling.

To the north of the modern town, about half a mile, a curious spiral tower is situated. It is called the Malwiyeh.\* Ascertained its height to be 163 feet, as near as possible. From its summit a fine view of the extent of ancient Samarra is obtained. Heaps of bricks, glass, pottery and scoriæ are strewed in every direction, and the alignments of many edifices are plainly distinguishable from this commanding position.† The former town is said to have been watered by a tunnel cut under ground, having its mouth in the neighbourhood of the Hamrin. Traces of this tunnel are still to be seen in the remains of wells, (named Kannats or Kharees) descending into it. Both the Malwiyeh and the remains of an oblong building (the Jammah or Medressah) close to it, are built of fine brick, with a neatness not to be equalled in the present day. The Medressah is about 810 feet in length and 490 broad, having 12 buttresses between the corner bastions on its N. W. and S. E. faces, and 10 on its N. E. and S. W. side. The great entrance faces the Hebla and shows at once its Mahomedan origin; a fountain appears to have existed in the centre of its area. The walls at present are about 30 feet high, and on the S. W. side the remains of Gothic windows are discernible. To the N. N. W. of the Malwiyeh, about two and half miles distant, are the remains of the Khalifa or Palace of Motassem, the 8th Khaliph of the Abbasides.‡ The entrance is now all that is left standing. The ruins around occupy a large space and have vaulted chambers beneath them; many an idle tradition is attached to these subterranean apartments by the Arabs, and moreover "Beckford's Vathek" owes its origin to this locality. During our visit to it in 1843, we descended into the

\* See sketch of this town and the modern Samarra, with a bird's eye view of the surrounding ruins.

† A spiral road on the outside of the tower conducts to its summit. Fraser, in his description of this tower, states the existence of a staircase in the interior of the building. I think however he is in error, as I deem it, from close scrutiny, a solid mass of brickwork. Large holes, similar to those observed at the Birs, Nimrud and the Mujelibe, perforate the pile at right angles, but for what purpose unless for ventilation I am ignorant. All the Babylonian ruins indeed, are thus pierced through, and the architect of the Khalifs in this peculiarity, appears to have copied the more ancient models.

‡ He quitted Baghdad on account of the rebellious disposition of its inhabitants. Note in Rich, Vol. 2, p. 251.

vaults by means of a rope and block much to the dismay of the frightened natives, who would not trust themselves near the spot, but awaited the termination of our enterprize with a superstitious dread. They firmly believe that a Lion has chosen this place to hold his court in, and when we again made our appearance on "terra firma" scathless, they thanked God for our delivrance. The vaults are of some extent, and are cut out of the limestone rock, but have brick roofs. A few seraps of old and much rusted iron and a fathom or two of decayed rope rewarded our labours.

The site of the ancient Samarrah was undoubtedly well chosen. The broad and rapid Tigris bounded it to the west, the main branch of the Nahrwán extending from the Kantaratel Resásá to the river "Atheim," on the north; and the south branch of the Nahrwán extending from El Ghaim in an easterly direction to its junction with the north branch, on the south; thus enclosing a triangle of rich land, whose longest side was 35 English miles and the remaining two 20 miles in length. Many towns occupied its area, and the numerous canals, offshoots from the great Nahrwán, crossing it in a diversity of lines, attest its former fertility. At this time not a blade of grass or a single tree breaks the monotony of the extensive view from the top of the Malwiyeh. A death-like silence prevails around the fallen city, interrupted only by the howling of a jackal, who has just issued from some of its deserted vaults.

W. by N. of the Khalifa and on the undulating mounds forming the right boundary of the valley of the Tigris, another ruin, apparently of the same order and date is seen. The buttresses which are met with at regular intervals along the wall, are partly standing, giving to the whole ruin, when viewed at a distance, from whatever quarter, the resemblance of a group of pillars. These buttresses are circular or square pedestals, and are neatly built of fine brick work. It is called "Ashik, or the Lover." Some high mounds about half way between the Khalifa and Ashik, or near the latter, in the valley of the river, mark the site, I think, of some very old ruin (probably Babylonian) of much earlier date than that above mentioned. The Arabs however call them "Máshuk, or the Beloved," and a bridge over the Tigris is said formerly to have connected them with Ashik, notwithstanding which, tradition assigns to this place a tale, similar to the well known but doubtful feat of the Leander of Hellepontic notoriety.

About four miles north of the modern town of Samarra, a high tumulus stands on the plain. It is called Tel Alij\* or the "nose bag round," and is said by tradition to have been raised by some former ruler ordering his troops each to bring the nose bag of his horse full of earth for this purpose. It exactly resembles the tumuli to be met with in Syria and in the plains of Shiragoor near Suleimanieh.

\* This highly curious and interesting mound, in all probability marks the site of the "Ustrina" or pyre on which the body of the Emperor Julian was burnt previous to the removal of his ashes to Tarsus.

We learn from Gibbon in his *Decline and Fall*, chap. 24, that the Roman army under Julian wandered many days to the East of Baghdad and afterwards countermarched in the direction of the Tigris, that the Emperor received his mortal wound and died within a few days march of Samarra, and that his body was embalmed amid a scene of terror and distress; we are informed also that Anatolius, master of the offices and the personal friend of Julian, with three tribunes met their death on the same day. That the army, after having elected Jovian Emperor, resumed its route at the next dawn in the direction of the Tigris and after marching and fighting a long summer's day encamped in the evening at Samarra. On the next day the second after the death of Julian, it appears the Roman legions remained encamped at Sammariah as instead of being harassed on the march, the Persian troops attacked the camp which was pitched in a sequestered valley. On the evening of the third day, it is related the Roman army encamped at Carche (see sequel) tolerably secure from assault in the protection afforded by the lofty dikes of the river; and that on the fourth day after the death of Julian they pitched their tents at Dina where they remained a considerable time occupied in vain attempts to cross the Tigris and finally accepted after four days' negotiation, the humiliating conditions of peace.

The circumstances attending the death of Julian and the subsequent marches of the army to Dina are here so clearly related that any one conversant with the geographical detail of the country between Samarra and Dur would trace, at a single glance, almost every footstep of the worn out and incessantly exposed legions. It will be seen therefore that the site of Tel Alij must have been the very ground on which the army encamped on the second day after the demise of the Emperor, and it is presumed that the act of encamping, under such circumstances, was one of duty and not of choice. The heat of a Sammariah summer cannot have materially changed since the time of Julian, the interment or burning of the dead therefore within 36 hours was imperatively necessary. The reason for embalming his body I conceive was only a compliance with universal custom (vide *Digest* 14, Ed. 3, S. 5, E. 8), or for the purpose of enabling it to accompany the army until the passage of the Tigris was effected, when comparatively secure, more time would have been afforded them for performing the sacred rites, than in the presence of an active enemy. But the insufferable heat, if such was the intention, I conjecture prevented its execution and caused either the interment of the body or its reduction to ashes on this very spot. The delay had already been extended to its farthest limits, for the time above stated is the utmost that can be accorded to the non-interment of the dead on the sultry plains of Irak or Mesopotamia, the army therefore was

At 9-55 A. M. April 6th, left Samarra, and had hardly proceeded an hour before we grounded on a shingle flat. From Samarra to this place we had been struggling hard against the violence of the stream and had nearly surmounted a fall of water over a shoal spot when the engines losing their power, the vessel's keel touched the ground and in an instant she was thrown on the bank, with her port broadside expos-

compelled to encamp for the performance of the inviolable rites of the "funus publicum" over the corpse of the departed Julian. This may reasonably, I think, be inferred; for any delay, otherwise than on an occasion like the present, would not have been resorted to in the distressed position the army then occupied, and moreover, at such times, we are informed a total cessation from business was enjoined (called *Justitium*) which was usually ordained by public appointment. The soldiers were then freed from their military duties even, (Tacitum. I. 16-82; L. W. IX. 7) and in this case no doubt enjoyed a repose they had long been strangers to.

It may be said that the act of embalming the body on the night of his death implied its removal into the Roman territories; but it can hardly be supposed that such an idea was ever contemplated by a famished army surrounded and harassed by barbarians at every mile, and amid such distress as Gibbon states, shortened the moments of grief and deliberation, even did the fierce heats permit such a proceeding.

The circumstantial detail however, of the funeral obsequies of Julian, which took place afterwards at Tarsus, as related by Gibbon, if literally true will, I confess, invalidate all that I have advanced, for he distinctly states in Vol. III. p. 236, that the *corpse* of Julian was transported from Nisibis to Tarsus in a slow march of fifteen days; but again in the next page, in speaking of the sophist of Antioch, he esteems his general zeal for the cold and neglected "*ashes*" of his friend, this in some measure leading us to conclude that the body was previously burnt. Whether this was the case or whether the heart alone sufficed for Jovian to bestow the last honours to the manes of the deceased sovereign, will for ever perhaps, be attended with some doubt; but we cannot at the same time, reconcile Gibbon's description of the great distress of the army, their famished and wearied condition, the factions existing amongst them, the anxiety of each individual to secure his present safety at the passage of the Tigris (where the loss of the army is stated as equalling the carnage of a day of battle), the subsequent sufferings both from hunger and thirst on their dreary march through the wilderness of Mesopotamia, when the beasts of burthen were slaughtered and devoured and the arms and baggage of the soldiery strewed the desert for want of strength to carry them, with the statement that his *corpse* reached the frontier town of Nisibis; indeed, the slow march of fifteen days which were occupied in transporting the remains of Julian from Nisibis to Tarsus will not, I think, coincide with the geographical distance between the two places of 400 Roman, 366 English, or nearly 25 miles daily march, and that too, through the hilly country situated at the foot of the Taurus.

These discrepancies certainly afford grounds for suspecting the general consistency of the historian, even did not the stern fact, which I have previously advanced of the almost impossible transaction of carrying the corpse for such a distance over the densely heated and sultry plains of Mesopotamia, negative such a procedure.

ed to a stream running nearly seven geographical miles per hour. I have been many times aground both on the upper Euphrates and on this river, but a worse position than this I scarcely ever occupied. The shore was 290 yards distant, and the dropping of anchors in the stream, from long experience, was known to be useless, as from the hard nature of the bottom they came home with the slightest strain. After six hours hard labour we succeeded in getting an anchor buried on shore, and a

I think therefore we may fairly infer that, either the body of the apostate Julian, or the funeral pyre in which it was consumed, formed the "Nucleus" of this antiquated pile, and that either his heart, or his ashes conveyed in an urn, received the "last honours of Jovian and the mournful lamentations and clamorous insults of the hostile factions" on the journey to Tarsus. The stately tomb erected to commemorate his virtues, on the banks of the Cydnus, has long ere this passed away; but the imperishable monument of earth raised by a devoted army over the remains of a beloved general, on the margin of the Tigris, will endure for ages yet to come.

For an interesting description of Yet Alij or Waliyah, consult Dr. Ross's paper on a journey to Apis in the *Journal of Roy. Geo. Society*, part II. vol. XI. act IX. p. 121. He describes it as about 100 feet high, but I consider it at least 150. Its present singular appearance may be accounted for, by subsequent rulers having fortified its summit as a place of refuge from sudden attacks during the ever-varying and disturbed stages which have swept over the country.

The Arab tradition in itself, is not a little curious, and shows that a large body of troops were employed in the construction of the mound.

In Gibbon's *Decline and Fall*, Vol. 3d, p. 225, we find in a note that M. D'Anville has demonstrated the precise position of Sumero, Carche and Dura. I have not M. D'Anville's work by me, nor am I acquainted with the situation he assigns to Carche. From my own observations however, I am inclined to identify this spot with the position the Roman army encamped in, under Jovian, the night previous to its reaching Dur. The "lofty dikes of the river" can be no other than the high embankments of the gigantic Malrwan, and by "the hills from which the archers of Persia insulted and annoyed the weary legionaries." I presume it meant the high conglomerate cliffs which here bound the east valley of the Tigris. These are diversified into a multitude of heaps caused by torrents from the highlands forming deep ravines ("sequestered valleys" of Gibbon) on their passage to the Tigris; unless it be as I have premised, it is certain that no other "Hills" exist within 35 miles of this vicinity. The eye wanders over a vast and magnificent plain, relieved only by the twin monuments of antiquity known as the Zellar Benat and Alij, which in all probability, were not only erected by the distressed legionaries over the ashes of their late Emperor and comrades, but remain to this day a sad memorial of the sufferings they endured.

The geographical distances of each day's march will be found to correspond with the movements of a large army, and the precise spot on which Julian fell must be looked for about 10 miles to E. N. E. of the ancient Samarrah. The true bearings of the various objects of interest in this neighbourhood will be found in another part of this *Journal*. taken from the summit of the Maluryeh, on the site of the ancient town.

chain of 150 fathoms attached to it, brought off across the heavy stream to the vessel. We now thought the heaving off certain, and were congratulating ourselves on our success, when the chain snapped in two and the vessel swung round with a heavy crash, as if her bottom was stove in, her head down and the starboard broadside now receiving the whole weight of the stream. Tried in vain to connect our chain again during a heavy squall of thunder, lightning and rain, and desisted for the night. During the night the stream forced the lee-side of the vessel higher up on the bank, while the weather-side heeled over to starboard, into deep water, occasioned by the heavy current acting against the vessel, cutting or abrading away the bank below us. At daylight the port side of the vessel was nearly dry, while the water was within 18 inches of the starboard scuttles, and had we remained much longer in this position she might have turned over or perhaps filled when the water reached them; at day dawn, however, we were again at work and happily succeeded in connecting the chains. From this time till 1h. 20m. P. M. on the 7th we had at intervals a heavy strain, by which the vessel righted and eventually came off the ground by allowing the stream to catch her on the opposite quarter. Employed the remainder of the afternoon, after securing in a good berth, in picking up our anchors and cables. Had we grounded on the lower Tigris a few minutes would have sufficed to have again set us in motion, but on the upper Tigris and Euphrates, it is the labour of hours, if not of days.

Part of the Shammar Arabs under Nijiris are roaming about this part of the country, as are the Al' Bu Hamed. Large herds of their camels are grazing around and enjoying the rich grass which abounds every where at this season. Some of the tribe approached the vessel when aground, and a Bedoin I have with me was sent to them, to offer no molestation to our crew, while burying the anchors on shore. Two of the party were present at the affray in which Suliman Mirza lost his life, and in which our friend Timour was severely wounded by a spear through his lungs. They inform us that the person who slew Suliman Mirza by severing his head from his body at one blow, met his death a few days afterwards from an Ajail Arab, when they attacked a caravan. They also profess to regret the circumstances attending the attack on the princes, and say they have not known "god" since. "Their chiefs have been killed and their children have died; their

favorite mares are barren and suffering from disease, and happiness has left their homes." Some English iron, I believe belonging to Messrs. Lynch and Co. of Baghdad, was offered to us for sale, for a mere nothing. This had been plundered from a caravan a few months previously, and a common bottle taken from some of Suliman Mirza's party was tendered for the exorbitant price of two Ghazees.\* The former offer, I replied, I could not accept, as I too, had iron for sale, and pointed to the 9lb. shot, which Syed told me caused some amusement. The latter, I did not want and offered them as many as they wished for, which soon lowered the price of their commodity. These people appear to be the terror of the Jezira from their lawless habits. The Shammar, though feared, are much less dreaded.

*April 8th.*—River rose three inches last night; weighed at 6h. with cloudy weather and a south wind which, should it freshen, may assist us. At 7-17 Ashik bore west three quarters of a mile distant, Cha'afel Kelb† some high mounds south of Ashik 201t. Sammariah 137t. Mahirgeh 129t. with the mounds of Máshúk nearly in a line with it, Khalifa 112t. The river from this bends more to the N. E. for a short distance along the cliffs, forming the east boundary of the valley of the Tigris, thence north to Shinas, some modern ruins which extend a considerable distance to near Abri Delif, a miniature resemblance of the Maluryeh, which we passed at 11h. a moderate south wind materially assisting our progress. At 1h. 10m. arrived opposite the mounds of Mehjir and the Kantarat el Resásá, or main branch of the Nahrwán already alluded to. The former is the scene of a great action fought by Omar, Pasha of Baghdad; against the large tribe of Majainmah (Dr. Ross's *Journal Roy. Geo. Society*, Vol. IX.) on the east side of the Tigris, about two miles inland from this, to the eastward is the upper "Sidd" or "band" across the Mahrwan, constructed of large masses of stone, held together by leaden clamps. From this it derives its name Kantarat el Resásá, literally signifying "the bridge of lead," and although not actually a bridge in our acceptation of the term, but a dam to confine the water in the low season, it might have answered both purposes, or with more probability, the name may be modern and come into use only since the decay of the canal.

\* About 8 shillings.

† Mounds of the Seven Sleepers and their Dog.

Passed many encampments of the Shammar on the right bank near Haweisilat. They extend nearly up to Mosul. These people are however, migrating towards Baghdad, as Suffok, the chief Sheikh, advances to the south. The parties of Nejris and Suffok, are now not on friendly terms owing to Nejib, Pasha of Baghdad, having invested the former as Sheikh of the tribe, while the latter claims it as a right. Ahmed el Kode (a connection by marriage of Suffok) informed me this morning that the Abeid once possessed the whole of Northern Mesopotamia, and that the present Shammar usurped the country in rather an original way, but a way nevertheless adopted even by more civilized nations than the predatory Arab races. He says "Two Shammar families with their tents originally wandered from Nejd, and after some time encamped with the Abeid. Among the chattels of the new comers a wooden bowl of extraordinary dimensions was observed, but it excited no further curiosity until the strangers invited some of the then holders of the soil to a feast, when the bowl was set before the guests, filled with the carcasses of sheep, butter, and the usual ingredients of Arab-fare. The dinner was duly discussed and the Abeid on returning to their tents were talking of the munificence of the strangers and the unusual dimensions of the wonderful bowl. A grey-beard of the tribe, who had not been at the feast, listened in silence for some time, and starting up to the dismay of his friends, demanded that the newly arrived strangers should be immediately put to death, adding with the air of a prophet, that the famous bowl told a story in itself, and that ere long, many strange fingers would be dipped into it. It literally happened as the old man had foretold. His voice was overruled in the assembly and the strangers' lives were spared. A few months afterwards, Shammar after Shammar arrived and feasted from the much dreaded bowl. A few years sufficed for the total expulsion of the Abeid, and from being lords of the soil, that once powerful tribe became fellahs and slaves to the formidable Shammar." Such was Ahmed's account of the origin of the Shammar in Mesopotamia, but nevertheless the Abeid are still powerful enough to render themselves obnoxious to the Government. They at present occupy the country opposite Tekrit and, I believe, now never cross into Mesopotamia.

At 3 hours 15 minutes the tomb of Imam Mahomed Dur at Dur\*

\* Dura was a fortified place in the wars of Antiochus against the rebels of Media and Persia. Note in Gibbon from Polybius, Vol. 3, page 226.

bore east. In shape it is a cone similar to that of the tomb of Zobeidi in Baghdad, on a square base. The village is a collection of miserable houses on the undulating mounds forming the east margin of the valley of the Tigris, and boasts of a small minaret. Rich appears to identify this spot with the "plains of Dura" of Scripture. The river opposite the village is disposed into numerous channels, much contracted, through which it flows at a very rapid pace.\* Having with difficulty ascended beyond the numerous islands, came to an anchor above the village about one mile to receive our fuel which is piled on the bank awaiting us.

The inhabitants soon collected. The Pasha's letter was presented and received with every mark of respect. After a short consultation, a boisterous fellow was called for, with hands stained with indigo, and who followed the calling of a dyer as well as Moollah and teacher to the "young ideas" of Dur. The letter was handed to him to read aloud for the satisfaction of his auditors, who formed a circle around. Diving his right hand into his pocket, which was capacious enough to hold any one of his scholars, he produced a pair of barnacles, and fixing himself in a commanding position, vociferated forth the contents of the missive, at the full pitch of his stentorian voice. When he concluded a buz of applause signified the approbation of the assembly, and their willingness to act in any way I might require.

To the east of Dur, about one and half miles, a high tumulus named Tel Benat† or the "girl's mound" is situated. It is similar to the Tel

\* On the fourth night after the death of Julian the army under Jovian encamped at this place, and experienced much difficulty in vain attempts to cross the Tigris. The ignominious treaty between Sapor and Jovian was here concluded. The impregnable fortress of Nisibis and the stronghold of Singara, were acquired by the Persians in a single article and a disgraceful peace of thirty years' duration consented to by the "obscure domestic," as Gibbon terms the newly elected emperor. Gibbon, Vol. 3, page 228. Great difficulty would no doubt be met with at the present time in crossing a large army at this particular spot. The River is here more than usually rapid from the great declivity of its bed.

† This resembles Tel Alij in appearance. It is about the same height, and evidently of equal antiquity; much care has been taken in its construction and the remains of a ditch and covered way are still discernable. The "tumulus" is no doubt of Roman origin, and copper coins bearing Roman characters but too much corroded to render them decypherable, were found in its neighbourhood. We know that both the Greeks and Romans erected conspicuous mounds or piles over the ashes of their celebrated Generals, and it is presumed they would have resorted to this mode of burying their illustrious

Alij, and can be seen some distance off from its isolated position on the plain. Between it and the village are many lime kilns. Lime is here found in great quantities, and Baghdad is chiefly supplied from this place. It is conveyed in rafts down the Tigris.\* I remarked that the

dead in a country where stone is not available for monuments. The sacred nature of the tomb amongst the nations of antiquity which preserved these structures inviolate in former ages, has equally defended them from the ruthless hand of the superstitious Arabs. Time also, instead of demolishing adds to a fabric of this nature, as every blast of wind that sweeps over the desert, carries with it clouds of dust which accumulates on and enlarges the original structure, rendering it the most durable and imperishable of all monuments.

If Tel Alij be admitted as the tomb of the ill-fated Julian, we may conclude that Tel Benat covers the remains of the legionaries who fell in the repeated attacks made by Persians, and of the many who lost their lives in the ill-conducted attempts to cross the Tigris at this spot.

\* The rafts in use on the Tigris at the present day have in no wise altered since the days in which Herodotus, the author of the *Analysis*, and the Historian of the Emperor Jovian, compiled their works. They are composed of the branches of trees supported on the inflated skins of sheep, and are capable of carrying a load of from 30 to 40 tons. These rafts are admirably adapted for the descent of the upper Tigris. Possessing but a small draft of water, they are enabled to float over the numerous dikes and shallow spots met with in its course to Baghdad. Floating with the stream, two or four paddles, according to the size of the raft, are capable of retaining it in the fair channel, and accidents therefore very rarely occur. On the raft being unladen at Baghdad the timber it is composed of is sold for what it will fetch, and the skins after being dried are conveyed back to either Tekrit or Mosul by land. In this manner the whole of the immense blocks comprising the Khorsabad marbles lately excavated from a village of that name in the neighbourhood of Mosul, by Monsieur Batta, the French vice-consul, at the expense of his Government, were conveyed to Baghdad and there shipped into native boats for Basra, where the national brig *Cormorant* was in readiness to receive and finally convey them to France.

Travelling by raft as a matter of convenience, is far preferable than by the land journey from Mosul to Baghdad. A tolerable-sized tent sufficient to protect one from the sun can be pitched on this original conveyance, and a few books, with the varying scenery, will tend to while away the few days, (not exceeding six and sometimes only two) that may be occupied in the descent of the river. It is however not at all times a safe route, for when the Arabs are in a disorganized state, consequent generally on some ill-timed measures resorted to by the Government for their coercion, they fail not in stopping and plundering any rafts or passengers that may chance to come within reach of them; indeed, I am informed, that on one occasion, a British officer happened to be journeying in this manner and was thus waylaid; my informant added that notwithstanding the over-confident individual was armed to the teeth, and had hinted a determination not to be taken alive, he was stripped of every thing he possessed, even to his nether garments. I have since met some of the party who helped to denude the unfortunate traveller. It was both ludicrous and amusing to witness the delight with which they imitated his piteous supplications to be allowed to retain only his shoes.

inhabitants here generally appear sickly, and sore eyes seem to afflict the greater part of the community. Some of the women were very pretty and fair, and evinced no alarm at coming near the vessel.

Having completed wooding by 7h. 45m. April 9th, we continued our ascent. The river above this is new to us, the vessel not having reached beyond Dur when we attempted the ascent in 1843. Indeed,

This was however denied, and he was compelled to walk barefooted through the prickly camel thorn from the encampment back to the raft. His gait and gestures under this indignity were inimitably personified by his ruthless captors. I have since heard that had it not been for the vaunting display of so many weapons by a single individual, that he would have met with better treatment, and been allowed to retain his habiliments instead of being forced to appear "in puris naturalibus."

The display and injudicious use of arms in a case like this cannot be too strongly reprobated: a single pistol or a sword is sufficient to intimidate a few petty robbers, but with the lawless tribes of the desert, who attack generally in overpowering numbers, the exhibition of offensive weapons by a disparity of force, serves only to irritate and is likely to lead to bloodshed which the Arab in most cases wishes to avoid. Blood however being once drawn, the result is easily conceived. The fate of Messrs. Taylor, Asperiall and Bowater, is fortunately I believe a solitary instance recorded of massacre having followed the rash act of injudiciously using arms, amongst Europeans; but such occurrences are frequently heard of as happening to the natives of the country, and indeed the "law of blood" universally admitted in the Arab code, in some measure sanctions the indiscriminate taking of life as an indemnification for the loss of either friends or relatives by strife or feud. This law, though possessing its disadvantages, is morally a good one amongst the barbarous tribes of Arabia, for murders would become of more frequent occurrence did not the fear of revenge tend to restrain the animal passions. A family having what is termed "Durn" or "blood" on its hands, is generally shunned by the rest of the tribe, who dread being involved in its consequences. The same rule affects individuals. The penalty however of "blood for blood" can be commuted for a sum of money paid by the offender to the tribe of the injured party, only a part of which the latter shares. It is collected from the whole tribe to which the culprit belongs, provided he is too poor to pay it himself, and the offence is not of a very aggravated nature. The "price of blood" varies in different parts, and is moreover not at all times accepted. In the towns, a small sum, according to the degree of the party, suffices, and may be reckoned as about £20 to 30. Among the desert tribes it is much more, amounting in some cases to nearly double these sums, paid partly in coin, and partly in camels, oxen, or sheep. On settling these affairs a good deal of form is gone through. The heads of the tribe and the relations of the parties concerned assemble at a fixed spot, and after payment of the penalty, witnesses are called to swear on the Koran to the nature of the settlement; a hole is then dug in the ground, in which the feud is considered to be buried. It is then filled up and a curse pronounced on the head of any party who might happen to revive the quarrel. The parties then separate. This contract is not however at all times binding; in a few cases a thirst for revenge predominates, and whole tribes are then involved by the breach of faith of a single man.

had we not been favored with a strong south wind, I fear our present attempt would have been attended with the like disappointment. At 10h. 50m. a small enclosure in the Hawi on the left bank bore east two miles. It is called Khán Jozani, and affords protection to the cultivators when threatened by plundering parties of the Abeid or Shammar. The tomb in Dur bore at the above time  $157^{\circ}$ . The river from Dur to this is known by the name of the Khán, and is much cut up into islands, rendering the main channel extremely sinuous. Our ascent to this has been one continued struggle against a heavy stream, and a rapid every half mile, which the vessel barely manages to overcome. Progressing steadily against the difficulties, arrived opposite Sheri at el Aouja, a landing place formed by a gap in the cliffs on the west side of the Tigris. From this Dur bore  $149^{\circ}$ . Caravans here halt to water. At the time of our passing, a Ghazu or plundering party of the Shammar were lying in wait for any opportunity that might present itself, of enriching themselves at the expense of others. Long before we reached Tekrit, the inhabitants had turned out and the adults of the population even met us several miles below. At four p. m. anchored at Tekrit, and received a visit from its Governor, Mustafa Effendi, who put the resources of the town at our disposal, and rendered us much service by placing at our command several Cavasses without which we could scarcely hope to complete the vessel with fuel, the crowd around being so great.

In the evening, I walked to the top of the cliff on which the old citadel stood. It bears evidence of former strength and, being naturally nearly inaccessible, must have been entirely so when fortified. The front facing the river is quite perpendicular, and exhibits horizontal strata of stiff clay, red earth, fine sand and conglomerate in successive layers from the water's edge to its summit; indeed, this is the general formation of the cliffs bounding each side of the valley of the Tigris from Samarrah to Tekrit. This isolated cliff is about 130 yards long by 70 broad, and in height 86 feet\* from the water's edge, but the debris of the former buildings scattered over its summit increase it to a hundred in its highest part. Large massive bastions of lime and pebbles faced with solid brickwork, abut around the cliff, between which the

\* Rich, in his work, estimates the height at 200 feet; he is however in error, for I bestowed some care on its measurement.

wall once stood. On the south face between the citadel and the modern town, and half way down the cliff, two buttresses of the same formation as the bastions, point out the situation of the gate-way. The bricks which faced them have been carried away for other buildings. A deep ditch about 30 yards in breadth, but now filled up with rubbish, conveyed the waters of the Tigris around the base of the citadel, thus completely insulating and rendering it impregnable, before cannon came into use. South of this on another isolated hill, stands the modern town, formerly girt in by a wall which has fallen to decay. It contains at present about 300 miserable houses and 1000 inhabitants, but the space formerly occupied by the ancient town is of great extent. Some ruins, called the Kanisah, or "Church," are still shown. A few years ago, when Suffok, the Shammar Sheikh, invested the town, a trench was dug by the inhabitants for defence. From it many curious urns of pottery and sepulchral vases were exhumed, one of which, in the possession of a Moollah Rajib, spoken of by Dr. Ross in his journal, I with difficulty procured from the owner. It is surrounded with figures of men and birds, of a curious, but rude execution, and is probably Babylonian.\* The modern town has two mosques but no minarets. The streets are kept free from filth, and altogether bear an aspect of cleanliness and order seldom seen in eastern towns.

I am told on an emergency 400 matchlocks and guns can be collected for the defence of the place, and am inclined to believe this is rather under, than above, the true amount. It is however, certain, that the Tekriths have maintained their position against the Arabs, and even compelled the powerful Sheikh of the Shammar to relinquish his intended assault on the place by the menacing attitude they assumed.

Mr. Rich, in speaking of this place in the flourishing times of Daoud Pasha, states that it was then farmed for 22,000 conl. Piastres annually, and that it boasted at that time of 600 houses. I presume this must be a mistake, for at present, though its dwellings are but half that number, and its population proportionably small, from the effects of the plague and other causes, the proprietor or farmer, pays yearly to the

\* It is now in the possession of Major Rawlinson, C. B., the Political Agent in Turkish Arabia, and the learned and indefatigable author of a work which is now in the press on the cuneiform inscriptions of the East. To his other and varied accomplishments he adds, that of a keen and persevering antiquarian.

Government of Bagdad a sum three times as large as that mentioned by Mr. Rich. For 68,000 conl. Piastres, or a sum equal to about £600, it is farmed this year. The Hakim or Governor is Mustafa Agha, an Agent or Vakeel of the proprietor, who resides in Bagdad. I paid him a visit at his house, if such a wretched dwelling can be called one. He received me very politely, and taking my seat among the elders of the place, various topics were discussed. The Governor paid us the utmost attention, and to show his breeding and knowledge of the world before the motly assembly seated around, asked if I preferred coffee after the European mode, with milk and sugar or "Al'aral." Not to put him to any trouble, I mentioned the latter, but he would not be gainsaid, and after many instructions and lessons on the art of making it, his servants produced a tolerable beverage. Great complaints are made by the Tekrith against the Government, and at the present unsettled state of this part of the country. Fear of the Shammar on the one side, and the Abeid on the other, have prevented the townspeople from extending their cultivation to its usual limits, and the consequence is, the rich land laying between Tekrit and the Hamrin, is now a perfect waste. The inhabitants are all Mahomedans with the exception of one solitary Jew, who is on the staff of the Governor, and whose life is not to be envied. To the question of what have you in Tekrit? "One barren date tree and an infidel Jew," was the reply.

During the night obtained a meridian altitude of a Scorpii from which I deduced the latitude  $34^{\circ} 35' 45''$  N. ; and from the citadel\* I obtained the following bearings. True bearing of the tomb at Dur S.  $27^{\circ} 8'$

\* I have searched in vain for any ancient notice of Tekrit. Naturally strong and rendered in a measure impregnable by artificial works whose remains are still plainly distinguishable, it is not a little curious that it has as yet, I believe, remained unidentified with some of the strongholds of antiquity. Both Rich and Fraser, though frequently mentioning it in connection with the geographical description of upper Mesopotamia, fail to attach any historical record to this locality. In an old atlas I observe BIRTHA is marked as situated on this spot and having no works in my possession that allude to it, I am compelled unwillingly to remain in ignorance. BIRTHA is however generally regarded as identical with the modern Bir, or Birehjik, a small town occupying an ancient site on the upper Euphrates; and the near resemblance of the ancient to the modern name would seem to justify the conclusion.

I am inclined to regard it as having been at one time a Christian town. The Arabs have a tradition to that effect, and the term "Khanisah" only used to denote a "church,"

E. Magnetic bearing of the same S.  $24^{\circ} 30'$  E. making the variation  $2^{\circ} 38'$  W. Tel Benat near Dur,  $150^{\circ}$ , Khán Jozani  $148^{\circ}$ , Arnin, on the opposite side of the river, called Kamsah,  $110^{\circ}$  opening in the Hamrin, where the Tigris breaks through, called "El Tet'bha,"  $348\frac{1}{2}^{\circ}$ . A ruin of an ancient nunnery termed Darel Benat\* or the "Girls Residence," stands about one and half miles to the S. W. of the citadel.

Having obtained observations† for the chronometer and despatched a messenger to Mosul with letters to the Vice-Consul, and with instructions to communicate with Suffok, to whom I addressed a complimentary epistle, we left Tekrit at 9-40, A. M. A new Pilot, or rather an old one (for I believe he is upwards of 70 years of age) was shipped for the river above this; in fact he is the same individual who conducted the *Euphrates* under Lynch seven years since. He declared after having been on board an hour and witnessed the performance of the vessel against the current, that she could not pass the rapids which the *Euphrates* found difficulty in ascending; indeed, what he says I fear will prove true, for our progress to-day has been considerably slower than yesterday, and in many places amounted to almost a stand-still. At 4-15, P. M. having a long reach full of difficulties ahead and no hope of passing them before night comes on, brought to an anchor in the only secure spot to be met with in the neighbourhood.

From Dur, the principal channels appear to be confined to the western part of the valley of the Tigris, but below that place the main body of the stream attaches itself to the western cliffs.

The latitude was observed this evening by a meridian altitude of Dubhe  $34^{\circ} 41' 52''$ , thus making our whole day's progress of  $6\frac{1}{2}$  hours' steaming equal to  $6' 7''$  of nothing only.‡

would warrant the supposition. Three ancient edifices in the modern town and a ruin on the opposite bank of the Tigris, are thus designated.

Since writing the above note, I observe that Mr. Ainsworth, in his *Asia Minor* includes Tekrit (Tagcit) in his list of Chaldean Bishoprics, Vol. II. p. 276, from a Catalogue published by Amru in the twelfth century.

The existence of Babylonian relics amongst its ruins, however, would refer its origin to a date anterior to christianity, but under what appellation it was known by, or from whence it derived its present name, I am at a loss to conjecture.

\* Probably a nunnery when Tekrit was a Christian Bishopric.

† These observations place Tekrit  $42' 16''$  west of Baghdad.

‡ A singular cave in the cliff forming the right margin of the river, is just below our

*April 11.*—At 6h. 14m. A. M. weighed, but in easting the stream caught her bow and there not being room from the confined space the river flows in, to bring her head up stream with the helm, dropped an anchor in the hopes of checking her, but without effect, from the hard nature of the bed of the river. Drifted down a considerable distance before we could get her head round, and did not reach the place we started from, until 6-45. The anchor too, on heaving it up, was found minus the stock. Sent the boats with a party of hands to track up while the vessel ascended the rapid, which she did with tolerable ease. Steamed up to a bluff point of the cliffs on the west side of the river called Abd'l Kerim\* from an old Immam now in ruins standing on its summit. Hauled alongside the bank to wait for the boats, which came through an inlet or Khalidj, observing a party of Shammar horsemen making towards the boats sent an armed detachment to prevent them molesting the trackers, on which they retreated. The boats having joined at 9-20, steamed on. The river rose 17 inches between sunset and daylight, causing a greater rapidity in the current. It is hereabouts divided into many channels and well wooded islands. 12h. 20m.—Reached Gubah on the left bank, near a high mound† in the plain, and the first tamarisk grove met with, north of Baghdad. Our wood is deposited here. Completed wooding by two P. M. and stood on. The channel is very tortuous to Kaleh Abu Reyash.

At four P. M. the Kaleh bore west. It is a ruined enclosure on the cliffs, with a fine plain or Hawi extending to the eastward; from it a

present anchorage; the Pilot terms it “E Seliva,” or the “Siren.” The Kelleckchis or raftmen have a peculiar dread of the spot, and will never stop in this vicinity, believing the interior of the cliff to be the habitation of a pleasing but seducing race, who lure but to destroy.

\* This is the burial place of a son of the Imam Musa, the seventh of the 12 Imams revered by the Shiáhs. He was born in the year of the Hejra 128, and was poisoned at Baghdad by order, it is said, of Harun El Rashid. He is buried at the village of Katherem, on the right bank of the Tigris, three miles above Baghdad, and the Persians have built a handsome mosque over his remains the cupolas of which are covered with beaten gold. Rich's Kurdistan and Nineveh, note to page 144, Vol. 2nd.

† This mound is of great antiquity, and as its name signifies in Arabic a “Chamber or Temple,” I think it might be identified with some of the last positions. I possess neither the time nor learning for such researehes. Were the mound exeavated it would no doubt afford some interesting relics. Its situation is about N. by W. from Tekrit, and is in Latitude 34° 47' N. or 11 Geographical miles distant from the town.

large encampment of the Shammar now occupy this magnificent plain. They are of Mejrís' party and of considerable strength. Nejiu is the name of the Sheikh, indeed the margin of the river from Tekrit to Khán Kharneinah is now entirely peopled by the Shammar, and all communication between Tekrit and Mosul is in consequence stopped. They have vast herds of camels and sheep, which are seen gazing with their beautiful horses on this rich plain dotted here and there with black tints, affording a pleasing picture of pastoral life, did not the character of the tribe contrast sadly with its primitive habits.

At six P. M. brought to for the night on the east bank. Our whole progress to-day, as deduced from the latitude obtained from an altitude of Dubhe,  $34^{\circ} 49' 43''$  has been but  $7' 51''$  to the northward. The river rose three inches during the night.

*April 12.*—Left at six A. M. and struggled hard against the rapid stream until 9h. when we were opposed by a fall. The ascent of this, not 100 feet in extent, occupied us until 11h. 20m. It was only overcome at last by a south wind springing up, enabling sail to be set, and by sending our boats to track up in shore. 12h. 30m, passed a ruined Khán named Kharneinah,\* situate under the cliffs on the west side of the valley. These cliffs now diverge considerably more to the westward, while those forming the east boundary of the valley of the Tigris, tend more to the eastward, leaving abrupt and broken angles at Kharneinah on the west, and at a point called Leg Leg on the east. Immediately north of Leg Leg about three miles, the remains of Nahr Hafu, or upper branch of Nahrwán, is seen. It is said to have conveyed the waters of the Tigris under the cliffs, through a tunnel, to the main branch at Kantarat el Resásá; † another small canal or feeder is situate about two miles south of the same point. From the diverging points described above, the country is more open and undulates in gentle slopes to the foot of the Hanrin range. From Khán Kharneinah the river is very tortuous and is divided by numerous beautiful islands, covered with every species of wild grass, as well as with the tamarisk

\* A caravanserai now in ruins. It stands on the high road to Mosul, and was much frequented when the kafilas pursued the route by the Jozira. The encroachments and increasing power of the Arabs rendering travelling by this route unsafe, caused its abandonment.

† Ancient Carche.

and poplar; some of the latter have obtained to considerable size, affording a precarious livelihood to the inhabitants of Tekrit, who raft it to Baghdad for sale. After leaving Kharneinah our progress was a little more rapid, owing to the fine southerly wind which continued till sunset, when we made fast for the night at an island about three miles below "El Tettha," or the "opening," where the Tigris breaks through the hills. The latitude observed here was  $34^{\circ} 56' 57''$  and the northern mouth of the Nahrwán bore N. E. one mile distant. The continuation of the Hamrin on the west side of the Tigris, termed Jebal Makhul, is now ended, and bears N. N. W. half W. The eastern ridge, or that termed Jebal Hamrin, extends from a little above this point to the eastward, and is an incongruous heap of barren mounds, composed of sandstone and pebbles without a blade of vegetation. Both the Hamrin and the Jebal Makhul are alike in formation, and may be reckoned about 500 feet high at this spot, though their altitude decreases as they advance to the S. E. The rich plain at their base is in pleasing contrast with their desolate summit. During the night the river fell six inches. Thermometer at  $50^{\circ}$  to  $85^{\circ}$  in the shade.

*April 13th.*—Left at 5h. 45m. and not being favored as yesterday with the south wind, advanced at a snail's pace to our wood, which we reached at 7 A. M. It is cut in a small tamarisk grove just above the mouth of the Nahr Haffu, and covered in with branches to prevent its being fired by the Arabs. Here we remained wooding and despatching answers to letters just received from Baghdad until 9h. 30m. Made a fresh start at this time, but as I had anticipated, after receiving our fuel, with little or no success, struggled hard against the stream, which here breaks through the hills with much force, until 11h. 20m. when we were brought to a stand-still without any hopes of accomplishing our object, and on considering that our success hitherto had been mainly attributable to fresh S. E. wind, and that obstacles of a much more formidable nature than those we had encountered awaited us, besides the risk we ran of grounding and eventual detention, should the water fall after the high state the river had risen to, I reluctantly determined on retracing our steps to Baghdad, and accordingly put the helm up.

The last day's journey has been through a rich country teeming with wild plants of nearly every description; undulating slopes of an emerald green enamelled with flowers of every hue are spread before the eye like

a rich carpet, at every turn of the stream, and nothing is wanting but the hand of man to turn such a profusion of nature's gifts to account. But all is a vast solitude. The silence is unbroken except by the rushing of the torrent past, the time-eroded cliffs, or by the screech of an owl, awakened from his lethargy by the flap, flap, flap of our paddle wheels. When Mr. Rich passed this spot some 20 years' ago, all was bustle and activity. Arab tribes were located on the banks of the river, and the beautiful islands, rich in their spring garments, formed the abode of the peaceful cultivator. The ruthless Shammar have since then, by the weakness of the Government, spread devastation wherever they pitched their tents, and, thinned by the plague which assailed the Pachalic in 1831, the former population have been obliged to flee to the more secure districts in the neighbourhood of Keruk.

The rapidity with which we are now descending after our hard struggle upwards, appears to gain fresh impetus at every mile. Rocks and islands, steep cliffs and shingle banks, quickly succeed each other. Cattle, tents, and men are reached in a single hour, and the silent desolation of yesterday is exchanged for the noise and activity of animated nature. The following places were passed at the respective times found opposite to them, viz. Khán Kharneiah 00h. 52m. Place anchored at on the evening of April 11th, 1h. 15m. Kalch Reyyash 1h. 30m. Reached Tekrit at 3h. 20m. P. M. thus performing the descent in 3h. 50m. which had occupied us 30 hours steaming on the journey upwards. Between Abdel Kerim and Kaleh Reyyash, a small stream or torrent fall into the Tigris on the left bank. It is named Nahr Milha, and is said to be of considerable size during the winter months, when swollen with the torrents from the Hamrin range.

*April 14th.*—Reached Samarra\* at 9h. 9m. A. M. Remained here during the day to make arrangements regarding the despatch of our overplus fuel to Baghdad by raft.

In the evening visited the Maluryah, from its summit I obtained the following true bearings as deduced from magnetic by a prismatic compass. Minaret or tomb of Imam Mahomed Dur at Dur  $342^{\circ} 45'$ ; Khán Tholush  $119^{\circ} 30'$ ; Khán Mazrakji  $132'$ ; El Ghaim, tower at the entrance of the south branch of the Nahrwán,  $165^{\circ} 30'$ ; ruins of Ashik, on the

\* By good observations for latitude and longitude, I place Samarra in  $34^{\circ} 11' 33''$  North, and  $32'$  west of Baghdad.

right bank opposite,  $299^{\circ} 30''$ . Tel Benat or the "girl's mound" near Dur,  $345^{\circ} 30'$ . Tel Alij or the "nose bag mound"  $18^{\circ} 30'$ . Khalifa or old palace,  $341^{\circ} 00'$ . Qádésiyeh old fortress extending from  $147^{\circ}$  to  $157^{\circ}$ ; Istabolat town  $167^{\circ}$ ; variation of the needle  $2^{\circ} 55'$  west.

*April 15th.*—Left Samarra at 6h. 21m. and steamed down the river against a heavy south wind, which in the reaches directly opposite to it raised the waters of the Tigris into a considerable swell. Passed Qádésiyeh at 7h. 25m.; Khán Mazrakji 8h. 10m.; Khán Tholiyeh 9h. 3m.; mouth of the Atheim 10h. 0m.; Sindiyeh, where we stopped for fuel, at 11h. 52m.; Jedidel village 3h. 7m. p. m. and anchored off the gardens of Trumbee in a heavy squall of thunder, lightning, hail, and rain at 6h. 20m. The next morning took up our old berth at Baghdad after passing through the bridge of boats.

From these observations it will be seen that the journey northward against the stream occupied  $86\frac{1}{2}$  hours steaming, while the descent was performed in the short space of 19 hours.

I much regret the termination of our trip, for I had flattered myself that it might not only prove useful in a geographical sense, but also both instructive and amusing. I had contemplated, could I have only reached the neighbourhood of Mosul, a visit to that town and the adjacent ruins of the Assyrian cities of Nineveh, Khorsabad and Nimrud,\* as well as a minute examination of the interesting Al Hadhr,

\* A large and very ancient mound, I believe first described by Mr. Rich in his *Kurdistan and Ninivch*. He identifies it with the Larissa of Xenophon. The learned Bochart in alluding to this spot, remarks the improbability of a town with such a name existing in this part of the world previous to the conquests of Alexander. He therefore conjectures that this city is the Resen mentioned by Moses in Genesis x. 12, and imagines the name Larissa to have been applied to it by Xenophon not only from the attachment of the Greeks to this peculiar name, but from its resemblance to the Hebrew Laresen "of Resen," which no doubt suggested its being corrupted to Larissa. He concludes by observing that it is easy to imagine how this word (Laresen) might be softened by a Greek termination and made Larissa.

Mr. Fraser, in his work on Mesopotamia and Assyria, states it is also known by the appellation of Al Athus or Asshur, from which the whole country derived its name. Be this as it may, there can be now no doubt of its great antiquity, for the enterprising and intelligent Bukhtyari traveller, Mr. Layard, so far back as last November, succeeded in discovering with little labour some beautiful specimens of antique statuary, in very high relief, and large slabs covered with the Assyrian cuneiform writing. He is now actively employed in extensive excavations since he obtained the Firman from the Porte,

so graphically described by my friend Dr. Ross, and I feel the disappointment the more, as I have already been six years in this country without ever having had such an opportunity, my duties not permitting me to absent myself from the vessel for a length of time, such as would be required to perform the journey by land from Baghdad.

The failure of this attempt is not to be attributed to any severe obstacles met with in the navigation of the Upper Tigris, for to a vessel possessing the power of those now running on the Thames of an average speed of 10 knots per hour, such difficulties as the *Nitocris* experienced would be deemed of minor importance. The *Nitocris* indeed under the most favorable circumstances in still water, cannot exceed the speed of 8 knots per hour, having a wheel of 12 feet diameter only, and a short stroke of 30 inches, more cannot be expected of her. By some miscalculation of the designer of the vessel this diameter of 12 feet is further reduced to 11 feet 4 inches, from being obliged to reef the paddle floats; as when carried out to the full extent of the circumference of the wheels, experience has proved, that she is much less effective than in her present state. The engines are in fact either placed too low in the vessel, or when launched the hull must have drawn more water than was calculated upon.

It is true that the *Euphrates*, built under the superintendence of Col. Chesney; ascended to a much higher point when commanded by and I am informed has realized in his discoveries all that an ardent antiquarian can wish for; indeed Nimrud is represented as inexhaustible. It is probable that Mr. Layard's first cargo of "reliques" have ere this, reached Baghdad, thus far on its way to England, and it is hoped, if the Government do not undertake the further excavation of this interesting mound, that some public body will lend its endeavours to facilitate Mr. Layard in the objects he has in view, and thus secure to England a rich mine of antique specimens, unique of their kind, which will afford matter for enquiry and further research into the large field now opened to us in Mesopotamia, and without doubt tend to elucidate and finally brighten the few glimpses afforded us, into the hitherto dark pages of ancient history.

The untiring and ardent mind of Major Rawlinson, I think, first suggested the idea of excavating on this site, and the antiquarian community of Europe are not only indebted to him, but to Sir Stratford Canning, H. B. M. Ambassador at Constantinople, who in addition to opening the mound, undertook, with a munificence rarely met with, to advance from his private purse the necessary funds for commencing the operations on an extensive scale. His unceasing exertions too, with the ministers of Constantinople to secure by Firman, the right of exploration on Turkish soil, without which Mr. Layard's exertions would have proved fruitless, must claim for His Excellency the gratitude of the British public. It only remains now for the Government to continue what has thus been so liberally begun.

Captain Lynch; but in all respects she was a superior vessel, though drawing a little more water than the *Nitocris*, and carried her paddle shaft at a considerable height above her deck, thus giving a diameter of wheel of nearly one-third more. To the above causes then must be imputed the inability of the *Nitocris* to perform the ascent of the Upper Tigris, as I have said before, that under the most favorable circumstances (without either fuel or provisions) her speed does not exceed 8 knots, it can hardly be deemed a matter of surprize that she should have failed to contend against a stream of  $6\frac{1}{2}$  geographical miles per hour with occasional falls, when it is considered that she carried above one month's provisions and 18 tons of fuel, besides the gums, material and men, on the present expedition.

When I left Baghdad I hoped for, but did not anticipate success; I am therefore not disappointed. We have at all events to congratulate ourselves having ascended to the Hamrin, whereas our former journey, having the same objects in view, terminated at Dur from an insufficiency of water.

The bearings throughout these notes are true, excepting where expressly mentioned by compass, and are reckoned from north to the right; east being 90°, south 180, west 270, and north 360°.

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*Note on the Sculptures of Bódh Gyah, by Capt. M. KITTOE, 6th N. I.*

Often has it occurred to me that if those who could draw even tolerably, would make rough outlines and send them to our Society, very great benefit might be derived, not only would the fast mouldering and vanishing relics of bygone days be preserved to memory, but we should have the means of comparing graven records from all parts of India, and perhaps be thus able to set many disputed points of history at rest, particularly as regards the habits of the early races, their objects of worship, their costumes, implements of husbandry, and of warfare. The few opportunities I have enjoyed of examining a tithe of the curiosities in this presidency, convince me of the justice of a remark of James Prinsep's on the subject of the art of painting and sculpturing practised by the early Buddhists, (see Note, p. 687, Vol. VI. of the Journal,) "it explains the practice equally, and teaches as how we may

successfully analyse the events depicted in the drawings of Adjunta, perchance, or the sculptures of Bhilsa.”—What would not our talented and ever-to-be-lamented friend have given to see the clumsy though interesting objects, the subject of this paper? In these we find the worship of the Dagop and the Chuttur, of the Sun and of Fire, of deities hitherto unknown to us, but which appear to have reference to bramanical creed, and point to Egyptian origin.

As the best way to induce and encourage an undertaking is to set a good example, I now lay before the Society a portfolio of rough sketches of some of the curious sculptures of unquestionable antiquity found scattered here and there at the former parental seat of Buddhism—Bôdh Gyah.

It will be seen that these bassreliefs are in medallion, they form the ornament of posts or pillars which, from the elliptical sockets remaining, show them to have supported a railing similar to that still existing around the Tope or Chaitya at Bhilsa, and represented in the very sculptures themselves, not only around the Topes, but forming enclosures for the sacred Trees and “Chutturs” (Umbrellas), &c. This pattern, which I shall call the “rail or bar pattern,” I had years since remarked as a peculiarity; it is to be found in the present sculptures, in the caves of Western India, Mahabullipore and Amaravatti, in the caves of Kundgirri and the Tope of Bhilsa, in fact it may be considered as the certain and indisputable mark of early Buddhist works. We have a square pillar with similar sockets in our museum, on one face of which is the figure of a priestess holding a bird cage, and on the other probably the elephant and Maya Davee, illustrative of her dream related in the Pâli annals; it is in Agra red sandstone, and I believe was found at Muttra and deposited in the museum by Col. Stacy; I invite the attention of my Calcutta brother-members to this curiosity, which has no doubt originally formed part of a similar work to those described.

By the foregoing it will be seen that from these sculptures we learn the peculiar style of architecture prevalent in the country two thousand five hundred years ago, at least of religious buildings, and from the Bhilsa sculptures we find that of fortifications.

We next see that the leading objects of worship were the Chaitya and the Bô tree, of which so much mention is made in the early Buddhist works.

Again we find that the implements of warfare were bows and arrows, spears, double-edged swords, precisely the shape of those still common in the Curjats or petty states of Orissa, called "Khandas," and that stones were hurled from the walls of their strongholds.

From the Bôdh Gyah sculptures we find that all the scenes are laid amongst the rocks; that such were the most favorite localities we have ample proof from most of the known sites in Behar, and of Western India, Cuttack and Ceylon, and the very remote antiquity of the practice is again confirmed by Herodotus and by holy scripture itself, as relates to Western Asia and Egypt, from which it may possibly have been borrowed.

The sculptures of Cuttack and Gyah represent the same style of dress and of coiffure, the men wearing a short, the women a long Dhotee, the upper part of the body remaining bare in both, with few exceptions; the hair of the men wound up in a knot on the crown, and that of the women both on, and behind, the head. The ears of either sex having extended lobes from the apparent weight of the great rings and knobs in them similar to those worn by the Kânphutta sects of monks (votaries of Siva) in the present day, and I should observe that the costumes above described closely resemble those still worn by the Kunds and Boomials of the Orissa mountains, the Chotya Nagpore districts, the head-dress in particular; the broad necklaces and anklets are an equally prominent feature.

In the description of preparations for the great convocation in Magda after the death of Sakya, mention is made of the nature of the ornaments, amongst which were representations of festoons of flowers, &c.; now this ornament is of repeated occurrence in the sculptures I am treating of; garlands are represented as suspended from the Chuttur and the Bô tree, and from poles both on and beside the Topes or Chaityás; angels are seen flying with them over the object of worship; and from the fragments at Gyah and Barabar, it would seem that this was always a favorite ornament; here then again we have the correctness of a description contained in one of the most ancient writings extant, confirmed.

Of all the subjects, that of the hand issuing from a rock or a cloud, and holding apparently a flame of fire, which is again surrounded by other flames, with a concourse of people in the act of worship, is the most curious and interesting; it will, I think, explain the allusion to

“Agnni,” in the pillar inscriptions which Prinsep could not account for, therefore considered the passage doubtful.

The next which occurs on the same stone is a young male figure in a chariot drawn by four horses and attended by two amazons with bows and arrows, which I take to be meant for “Surya” or “Mythra,” the Sun, whose emblem is oft repeated in the shape of the chakra or wheel. This again explains another doubt in the same reading, as well as the emblems on the early coins.

A third sculpture exhibits a temple with the Monogram (on an altar) so common in the coins, likewise surmounting the standards represented in the Bhilsa sculptures,  which I think may be considered to represent both the Buddhist and Hindu Triad, as the trísúl and the mystic syllable “aum” combined; taking the figure as it stands, it forms the trísúl, if separately, we have the  and , of which I consider it to be a combination, but if the second letter is objected to and | u be required, the | verticle line below the circle at once supplies it; if again the y  is preferred, we have it in the upper half thus , and I think that I shall not be taxed with too great a stretch of imagination in offering this solution of the problem.

Assuming the foregoing to be correct, I must beg permission to digress a little and offer a few words on this curious emblem to show its connection with the present idol and worship of Juggannath, and the once famous Somnath; first then let me invite the perusal of Patterson’s able paper on the Hindu religion, to be found in the 8th volume of the Asiatic Researches, under the head Juggannath; he attempts to show, and I think successfully, the origin of the idols and worship of Juggannath; he considers those wooden idols to be an ingenious personification of the triliteral and mystic word “aum” itself, held in reverence not only by the three great sects of Hindus, but (as I have shown) by the Buddhist likewise. Mr. Patterson imagines that the device was to render the temple an object of worship for all sects, the surest method to draw a large revenue from pilgrims, he was led to this supposition from the similitude betwixt the written syllable  and the shape of the logs or idols



which (it will be observed) still more closely resemble the symbol of these sculptures; supposing then these inferences to be correct, we come to the conclusion that the object of

worship at Juggannath was in fact the Supreme Being, "Jug-nath," "Lord of the universe," in the sign trilateral syllable representing His three attributes "aum."

That Somnath, the great pagod of Western India, was dedicated also to the Supreme Lord of the creation under the same symbol Aum, I think there can be no doubt; both temples are alike situated on the border of the ocean, where mortals at a glance could see the three great elements themselves, viz., the Heavens, the Earth, and the Waters the mightiest works of the Creator.

The word Somnáth may be composed of two syllables, Som and Náth, the latter meaning Lord, the former, either a way of expressing Srí in the dialect of the gulf or of an abbreviation of the words Srí and Aum, or thus Srí—Aum—Náth. The mighty Aum, the Lord, which latter I consider to be the most probable; the first conjecture merely arising from the fact of "Som" being an affix to other names in that part of India, such as Som Meanee for instance, and others I cannot at this moment call to mind. I am nevertheless aware that Som was a name for the moon, also an emblem of Siva.

I believe Juggannath to be of comparatively modern date; the present temple is more recent than that to the Sun at Kanarac commonly called the black pagoda, and neither are above 600 years old. I think it therefore not improbable when Somnath was destroyed Juggannath was established on the opposite coast in a remote spot less likely (as it has proved) to be molested by the Moslem usurpers of India's thrones.

I have suggested that the objects represented in the Gyah sculptures point to Egyptian origin; perusal of Mr. Patterson's treatise above quoted will show that the idea that India borrowed her mythology from Egypt is not novel. Capt. Burr, in his *Journal of the Campaign in Egypt* in the same volume has thrown out hints on the subject; nor are these gentlemen the only persons who have brought forward strong arguments in favor of the supposition, I therefore invite particular attention to this point and to the drawings,\* in which will be found the figure of a female with the head of a horse or an ass, another of a goat on a pedestal or altar,—the water jars, the three figures, two female and one male. The Lotus oft repeated, and again the couple caressing each other, beside whom water jars are placed. The centaurs or minataurs, the

\* I hope to be able ere long to supply copies of these drawings to the Society.

winged oxen and horses, and the sphynxes, all are objects at once curious and instructive, for which reason I have taken the drawings I have now the pleasure to lay before you.

As I am always asked by those who have been at Bôdh Gyah, where these curiosities are to be seen, I will explain for the guidance of future travellers—first then, to the right hand facing the great tower within the quadrangle, is a miserable modern built mut or temple, containing five Budha images shown to the visitors under the name of the Panch Pandus; beside this is another with a kind of porch supported by eight or nine flat octagonal pillars; on these many of the sculptures are to be seen, also the sentence  $\text{H} \text{J} \text{J} \text{+} | \text{A} \text{J} \text{J} \text{+}$ . The gift to Gyah of Ajaya the? The meaning of the word  $\text{+} |$  I cannot make out; it may be Kúrú, and if so, it will read “of the invincible Kúrú;” there are other fragments built into the ceiling of the little temple in the centre of the square, also in the great temple itself; further sculptures of the same kind are to be seen in the colonade of the Mahunt’s mut or monastery, where there are five more octagons and one square pillar of the same sort, on which latter the most curious subjects are found. There are a number of other pillars there, of the same shape and dimensions, but of a different material (granite), date and style of sculpture, the most interesting specimens of which are here represented, tinted blue in contradistinction to the others, which are of a redish yellow hue.\*

I have been unable to find any of the elliptical connecting bars, but several portions of the upper rail or capping are to be seen; many stones have been carried away, others are built into the walls of the mut and many still lie buried beneath the rubbish behind the great temple, where the rest were found.

There are many idols and fragments of former buildings well worth drawing, and I hope I shall be some day enabled to add them to the large collection I already possess and to offer a few remarks on them, my present notice was intended to apply only to the more ancient Budha sculptures; I shall now therefore take leave of my readers, on whose patience I must have already trespassed too long.

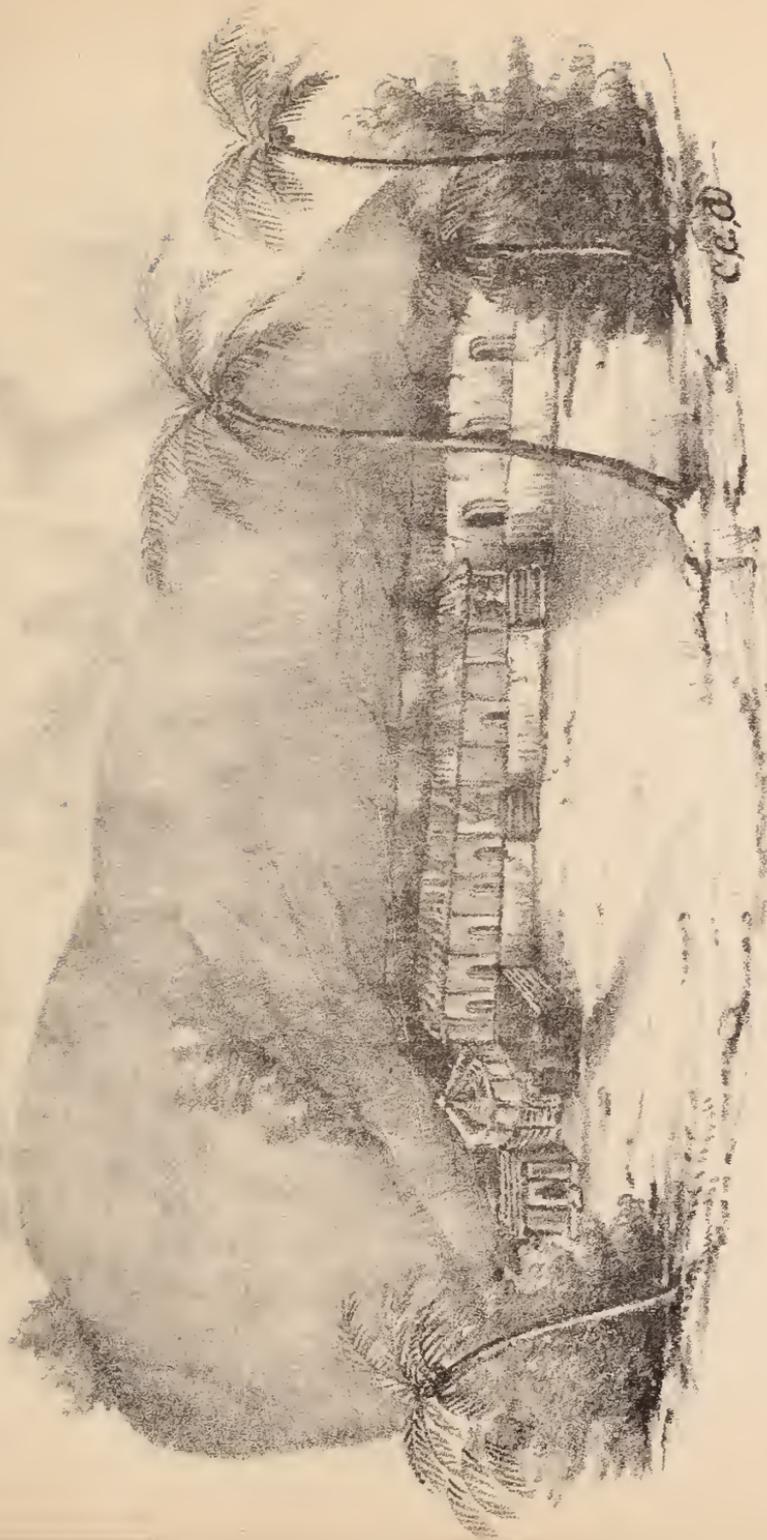
\* This refers to the admirable drawings exhibited at the meeting, and on the occasion of Capt. Kittoe’s interesting lecture on the Buddhist antiquities of Gyah.  
—EDS.

*The rock temples of Dambool, Ceylon, by WILLIAM KNIGHTON, Esq. author of the "History of Ceylon," and late Secretary to the Ceylon Branch, Royal Asiatic Society.*

The large mass of rock which goes by the name of Damboolla-galla, is situated about forty-five miles to the north of Kandy. It is of primitive formation, being chiefly composed of gneiss and mica-schist, and is in many places rapidly advancing to disintegration. There can be little doubt that it has either been elevated to its present position by successive upheavings of its mass, or that by the action of the sea when it was at the surface of it, or on a level with its bed, the surrounding earth had been washed away, leaving its naked mass prominently and permanently elevated.

At the village situated at its base, four lines of roads, or more properly traces, diverge in various directions. One running in a north-westerly direction through Anuradhapura to Aripo and Manaar, another in a north-easterly course to Trincomale, a third in a southerly direction to Kandy, and a fourth south-westerly through Kurneyalle to Ambapusse, where it meets the great road from Colombo to Kandy. To this circumstance, and to the existence of a tappal-station there, the village owes its origin, and as the traffic on these various lines of roads increases, there can be little doubt the village will increase likewise. A large and commodious rest-house is already in existence, and requires but a greater number of visitors to become much more comfortable than at present.

The accompanying rough and badly executed sketch, may give some idea of the appearance which the rock presents on its northern side as seen from the verandah of the rest-house. Somewhat of the shape of the hinder part of a gigantic human skull, it raises itself bare and naked, unvariegated over a very considerable extent, by a vestige of vegetation. To the south it spreads out into a less elevated and naked, but more extended mass, affording an easy access to that part hollowed out by religious zeal or fanatical enthusiasm into cave temples. Immediately above those temples the rock rises in a perpendicular mass, probably to a height of one hundred feet more, and affords by means of a disjunct ledge, a dangerous and fearful road to the highest summit. The excitement of climbing blinds one at first to the difficulties of



THE CAVE TEMPLES OF DAMBOON.



this expedition, and it is not till he turns to descend that he becomes fully sensible of his danger. Arrived at the summit, a height of about five hundred and fifty feet above the surrounding plain, a wide and interesting view of the level country beneath repays the adventurer for his toil. In the east, rising in the distance to a considerable height, will be seen the rock Seeqiri (pronounced Heeqiri by the natives) to which Kassapo, the son of Datusens, fled to fortify himself against his brother, after he had murdered his father and usurped the kingdom, A. D. 477. The hill called Dahiakande, near the rock last mentioned, points out the position of the fort of Vigittapooa, visited and described by Major Forbes and Mr. Turnour, and memorable for its seige by Gaimono the first, in the second century before Christ. To the south may be faintly distinguished the outlines of some of the Kandy hills, whilst to the north a wide and level plain extends itself, bounded by the rocks of Miwara Kalawia.

On the summit I saw the remains of an edifice which formerly existed there, consisting of stones and bricks, and on examining the vicinity for some other indications of human labour, I found a hole cut in the rock, one foot square and about a foot and a half deep, into which I imagine the beam or pillar on which the building rested had been inserted.

The entrance to the caves is as I have said, about one hundred feet below the level of the highest summit of the rock, and at the distance of about a mile from the village to which the rock gives its name. A rough tiled building, built principally of wood, affords a passage to the more immediate precincts of the caves, and on entering this the visitor finds himself standing on a ledge of rock covered with a slight coating of mould, out of which a few cocoanut trees and many shrubs glean a scanty supply of nutriment. To the right rises the perpendicular mass of the rock, which to a height of about thirty feet, has been excavated, partly by human labour and partly by nature, a wall being built up in front of the caves, which reaches to the overhanging mass of rock above. To the left the hill descends very steeply, covered with herbage of various kinds, amidst which hundreds of monkeys disport themselves, secure from the violence of man in a scene hallowed by the temples and images of the bloodless prophet of Maghada. The ledge of rock, covered with a slight mould on its eastern side, on which I am now

supposing the visitor to be standing, runs in front of all the caves, a distance of about five hundred feet, varying much in breadth, but gradually becoming narrower towards the western side, where are situated the two *aluth* or new caves. In front of all the temples a narrow verandah extends, which projects from their front wall, and above which may be seen the marks of the wedges used in excavating them.

I have said that the rock temples of Dambool are partly natural and partly artificial. So long ago as one hundred years before our era, they had served as a refuge to a Ceylonese monarch when escaping from the Malabars, who had invaded his kingdom, and in gratitude for his deliverance and for the shelter they had afforded him, Walagambahu piously increased the caves to a much larger dimension, placed in them images of Budha, appointed priests to take charge of them, and dedicated certain lands for their support. The invasion of the kingdom by the natives of the continental coast, the flight of the monarch, and his subsequent success, are thus related in the Rajavali.\* “After his (the previous king’s) death, Walagambahu Rajah succeeded to the throne. When he had reigned five months, seven Malabar chiefs with seven thousand men from Sollee, made a descent on Ceylon, and drove Walagambahu from the throne, and one of the Malabars taking the king’s wife, went away with her. Another of them seized the patrya cup of Budha, and likewise went away. The other five Malabar chiefs remained, and succeeding one another in the government, reigned as kings for the space of thirty years.” (The Mahawanso, with more probability, computes their reigns at fourteen years in all); “about the expiration of which time the king, Malaganbahu, who had been living amongst the rocks in the wilderness, left his solitude, raised an army, and attacking the city of Anuradhapura, destroyed the Malabars, again ascended the throne, and caused the houses of stone or caves of the rock in which he had taken refuge in the wilderness to be made more commodious.” In the Mahawanso, as translated by Mr. Upham, the caves of Dambool are particularly mentioned as having been constructed by Walagambahu, although in Mr. Turnour’s version, which is generally so much fuller, strange to say, this notice is altogether omitted.

The next notice which Ceylonese history affords us of these caves, is in the account of the reign of Kirti Nissanga, A. D. 1187 to 1196.

\* Part 3, p. 223, in Mr. Upham’s translation.

The Rajavali,\* after informing us that that prince went, with many followers, to Adam's peak, and worshipped there the print of Buddha's foot, adds that "in order to perpetuate his name in Ceylon, he caused the dagobah at Dambool to be built, and having gone there, caused to be made 72,000 figures of Buddha, and the said place he called by the names Rathinda and Boolhinda."

The word thousand, in the above extract, is probably an embellishment of the historian's own, seventy-two alone being mentioned in the inscription on the rock, which records that monarch's benefactions, and of which we shall now speak particularly.

The visitor has been supposed to stand on the ledge of rock immediately in front of the caves, after having passed the rough building which serves as an entrance. So situated, the first object which presents itself to him is this inscription on his right hand, deeply graven in the rock in the old Cinghalese character, differing but little from the character now used. The inscription itself occupies a space about six feet broad, and four in height. It commences by describing in the usual eastern style the monarch whose actions it records, Kriti Nissanga. He is stated in it to be "an invincible warrior," to be endowed with "might, majesty and wisdom," and to be "like the placid moon, radiant, with cheering and benignant qualities." These necessary preliminaries being ended, it proceeds to inform us that his subjects having been impoverished by inordinate taxes, he enriched them by relinquishing his revenue for five years, and by granting to them lands and cattle. It then asserts that besides all this, he rendered all those who cultivated jungle, and thus increased the quantity of cleared land, exempt from all taxation for a considerable period—a provision strikingly wise and excellent. The remainder of it, as being less tedious and redundant, I shall quote entire. "He (Nissanga) also made it a rule that when permanent grants of land may be made to those who had performed meritorious services, such behests should not be evanescent, like lines drawn upon water, by being inscribed on leaves, a material subject to be destroyed by rats and white ants, but that such patents should be engraved on plates of copper so as to endure long unto their respective posterities.

"Thrice did he make the circuit of the island, and having visited the

\* Part 4, p. 255.

villages, the towns, and the cities, and having explored the places difficult of access, the fastnesses surrounded with water, the strongholds in the midst of forests, and those upon steep hills, he had as precise a view of the whole as if it was an *amlaça* (a kind of prism) on the palm of his hand, and such was the security he established, as well in the wilderness, as in the inhabited places, that even a woman might traverse the country with a precious jewel, and not be asked, what is it? When he had thus ensured safety in the island, he longed to engage in war, and twice dismayed the kings of Paandi,\* and having accepted the royal maidens, and also the elephants and horses, with other tributes of homage which they sent him, he formed friendly alliances with such of the princes of Choda, of Gowda, and of many other countries as duly appreciated his good will, but by his personal valour struck terror into those who esteemed not his friendship; and he caused princesses to be brought to him from each of those countries, with other tributes of homage, and as then there remained no hostile kings throughout Dambadiva to wage war against him, he tarried at Rammisseram, where he made donations of balanced weights, consisting of valuables, and thus enriched the poor and satisfied the needy. He then caused obelisks of victory formed of stone to be set up as lasting monuments, and having built a devale consisting of five divisions, departed thence with his army, composed of four regular bodies, and returned to Ceylon. Then reflecting that albeit he had no enemies here, he might possibly encounter enemies hereafter, he caused alms-houses to be erected in many places in Dambadiva, as well as in this island, and caused alms to be distributed constantly. He also caused gardens and fields to be cultivated and dwellings for priests to be formed upon the hill Ranko-hokaloöheene, wherein is situated the cave of Dambula Sena.

“ Having a perfect knowledge of the doctrines of Buddha, he promoted the cause of religion, and also the interests of science; he restored the ruined fanes, and the roads which were destroyed in consequence of the calamities which had befallen the land, during former reigns, and rebuilt the wihares in the city of Anuradhapura, in Kelania, Mewoo-yonc and many other places; he expended vast riches, and within this wihare he caused to be made seventy-two statues of Buddha, in the recumbent, the sitting, and the standing posture, and having caused

\* An ancient kingdom on the Coromandel coast. Its capital was Madura.

them to be gilt, celebrated a great puja at the cost of seven lakhs of money, and as is thus recorded upon this stone, gave to this cave the name of *Swarna Giriguhaaya*,'' (i. e. the cave of the golden mountain.)

Such are the contents of the lengthened inscription which prominently strikes the eye of the observer on first advancing to the caves of Dambool, and the picture which it gives us of the government of Ceylon in the twelfth century is far from contemptible. The caves themselves are five in number—the first three stretching from east to west, are the older, and the more laboured structures, the remaining two, forming an obtuse angle with the others, being much more recent and comparatively insignificant. The excavations are separated from each other partly by remaining portions of the rock, and partly by artificial walls, and they stretch into the heart of the mountain to various distances from fifteen to one hundred and thirty feet. The ground plan of them which I annex will perhaps give a better idea of their relative positions than a mere description.

In height they vary from ten to thirty feet, being generally more lofty at the entrance, and gradually decreasing in height as they advance into the rock. The cave usually called the first, as being the first the visitor reaches, is also the most easterly, and is but a few yards distant from the inscription just treated of. It is called the *Maha-Deva-Devale*, (the temple of the great god,) the title not referring to Buddha, of whom there is a gigantic colossal statue in the cave, but to Vishnu, a statue of that deity also placed in it being considered of superior sanctity. On entering the *Maha-Deva-Devale*, the visitor at first sees but little difference between it and the interior of the other wihares scattered in such profusion over our island. It is not till his attention is directed to the fact that the gigantic recumbent image before him is a portion of the rock around that he becomes sensible of the peculiar nature of the cavity in which he stands. The figure of Buddha is forty-seven feet long, his head rests in the usual manner on his right hand, the right arm being bent beside him, the hand again rests on a pillow, in which is apparent the impression supposed to be made by the weight of his head and arm—the whole being cut out of the solid rock around, together with the bed on which he lies. Being rather doubtful of this fact of which the priest had just informed me, and being anxious to be certain about the matter, in a moment of thoughtlessness, I knocked

pretty sharply the massive elbow beside me to test its truth, when the priest raised a cry of horror at my temerity, and seizing my arm, would have put me from the sacred edifice; I, of course at once apologized for my want of thought, as I was far from intending to wound his feelings, and I soon found that a few rupees, added to my explanation, made matters perfectly satisfactory. I had the pleasure of assuring myself by my profanation, however, that the image actually is of stone, and that there is no deception about the matter. Besides these two statues—the colossal one of Buddha, and the smaller one of Vishnu, there are four others of the Maghadie prophet, of about the natural size, and of the kind so common in all the wihares of the island.

Leaving the Maha-Deva-Devale, and proceeding to the westward, the visitor ascends a few steps, and finds himself in front of the Maha Wihare or Great Temple, by far the largest of the five. In front of the Maha Wihare, or as Major Forbes calls it, the Maha raja Wihare, the temple of the great king, and near the small wall that borders the steep side of the mountain, rises the Bo-tree, from beneath which a view of the exterior of the second, third, fourth and fifth caves may be obtained. The accompanying sketch, imperfect as it is, may afford some idea of their appearance. To the right the first temple stretches in a line with the second, but hid by intervening trees; and to the extreme left are seen the two smaller and more recently excavated caves, forming an angle with the others. The projecting inclosure to the left, of which two walls are seen, represents the tank, which it will be perceived is laid down in the ground plan. Immediately above both entrances to the Maha Wihare, marks of the wedges with which the rock was split are very apparent—evidences of the labour employed in the construction of the caves.

On the massive doors and small windows of the Maha Wihare being opened, the visitor sees before him a large spacious apartment, the floor of which, that is, the rock beneath him, is quite level, whilst the roof gradually descends from the entrance to the further side, being twenty-one feet high near the front wall and only four at the opposite quarter. Immediately in front of him (supposing him standing at the door) he sees a line of statues representing Buddha, either in the standing or sitting posture—some plain, others ornamented with an arch like canopy surrounding his figure. On his right hand the same line conti-

nues uninterrupted, making a right angle with the former one, but on the left, where a similar line also extends, his view is intercepted by a well proportioned dagobah, the top of which touches the roof above. The sketch beneath may give some idea of its proportions.

The Maha Wihare is upwards of one hundred and seventy feet long by seventy-five feet broad, and contains within its spacious dimensions forty-six images of the prophet god, none of them being smaller, and the majority much larger than life. Besides these, which stretch in the manner described round the cave forming three sides of a parallelogram, there are also statues of Walagambohu and Kirti Nissanga, the two great benefactors to the caves—the former the excavator of the first and second caves (the Maha-Deva-Devale and the Maha Wihare), the latter the embellisher of the “great temple,” and the excavator of the third. Kirti Nissanga appears also to have been the restorer of the first two caves to their original condition after they had been pillaged and defaced by the Malabars. In one corner of the Maha Wihare there is a depression in the floor of the cave, about two feet deep, into which water is continually dropping from the rock above. This water is considered sacred, and is used only for sacred purposes. A few young cocoanut trees in jars are placed around it, which present a yellowish, sickly appearance from the want of light.

One can hardly walk through the spacious cavity of the Maha Wihare without feeling involuntary awe at his situation. The great size of the cave itself, the strange echoing of his footsteps, number of gloomy and shadowy statues with which he is surrounded, the gentle dropping of the water in the distant corner, the noiseless tread of the yellow-robed priest who attends him, with the death-like stillness that pervades all around, are calculated to impress upon him a kind of religious or superstitious awe of which he may in vain endeavour to divest himself.

The entire of the roof of the Maha Wihare is covered with cloth, on which are represented countless images of Buddha with a few attempts at historical painting. The latter I consider much poorer than Major Forbes' description\* led me to expect. I could not perceive any superiority in them to the various Ceylonese paintings I have seen in other parts of the island. In painting, the ancient Ceylonese seem to have been very imperfect, and although we occasionally find a correct

\* Vol. I. page 371.

outline or a well proportioned figure, we seldom see a group represented without some absurdities that violate all our notions of congruity. I had formerly considered the Ceylonese attempts at painting as about equal to their musical performances, and I saw nothing at Dambool to make me alter my opinion. We see there kings praying at the Ruanwelle dagobah in Anuradhapura, (which was originally 270 feet high, and stood on a square mass of building 2000 feet in circumference,) whose bodies are represented as being larger than the dagobah itself, and whose towering crests overtop the building before which they bow. Again, in an attempt to delineate the landing of Wijeya, we have a ship sailing on an ocean filled with fish as large and larger than the vessel itself, and into whose enormous mouths, had the animals but held them open, the luckless adventurer with all his crew might have passed unwittingly until he should find out the difference between a fish's stomach, and the throne which he doubtless dreamt of in Ceylon. Nor is the attempt to delineate the combat between Dutu-Gaimono and Ellala, the Malabar invader, which occurred in the second century before Christ, much more successful as a work of art—the dart which the usurper hurls at his aspiring adversary being in proportion to the monarch's body what the maintop-mast of a vessel of 500 tons would be to one of us. But if these paintings are ridiculous in an artistic point of view, they are, on the other hand, extremely valuable as confirmations of the ancient history of Ceylon. If such an invader as Wijeya never landed on its shores, whence came the record of his expedition contained in the Mahawanso, the Poojavalli, the Neekasanga, the Raja Ratnacari, and the Rajavali, or if these be all fictitious whence came the paintings on the rock of Dambool, with the tradition connecting the name of Wijeya with it. And so of all the rest. Yet though the proofs of the truth of that history are scattered all around us in the island, more especially in the region round Dambool and Anuradhapura, there are those in the island itself who laugh at these tales, "as old wives' fables," and there are pretended *savans* in England who would reject them also, because they never heard of them before, and therefore will not take the trouble to investigate them.

On leaving the Maha Wilhare the visitor finds little in the three remaining caves to excite his wonder or admiration. They are so inferior in size, and in the execution of the works of art which they

contain, as to excite little but contempt for them after having seen the great one. They may be taken as emblematic of the power of the various monarchs who formed them, and of the state of Ceylon at the period of their excavation—the second formed about 100 B. C. infinitely superior to the third, which was excavated in the twelfth century after our era; the third surpassing the fourth, which was constructed in 1750, and the fourth surpassing the fifth, which is still more recent. I shall therefore content myself with mentioning their contents, leaving the rest to your imagination.

The third is styled the *passpilame* or western wihare, and contains in addition to fifty images of Buddha of all sizes, a statue of Kirti Sree Rajah, who reigned about the middle of the last century—the last Ceylonese soveraign by whose exertions the caves of Dambool were embellished or enlarged. Although there is a greater number of figures in this cave than in any other, yet from its small size in comparison with the second, they do not produce any remarkable effect. The *passpilame* wihare is seventy-eight feet long, and varies in breadth from thirty to sixty feet. The fourth and fifth caves are called the *altith* or new wihares, in reference to their age, being, as I have before remarked, much more recent than any of the others. The fourth was constructed by the monarch last named, Kirti Sree; the fifth by a Kandian noble in the latter part of the last century. The first of these is forty-two feet long by thirty broad, and projects about fifteen feet in front of those formerly mentioned; it contains ten images of Buddha. The last is also about forty feet long by twenty broad, and contains a gigantic image of Buddha in the reclining posture, nearly twelve yards long. Besides this there are in the same cave eleven other statues of smaller dimensions.

Such are the five cave-temples of Dambool, lasting monuments of mistaken zeal and wasted labour—evidences of the religious devotion of those who excavated them, and evidences also of the implicit reliance once placed by the natives of Ceylon in the faith of the prophet of Maghada; but that faith is now on the wane—nay, its light is nearly extinguished, and but a solitary pilgrim or a prying antiquarian is now found to resort to those temples where thousands formerly worshipped and where kings once prostrated themselves.

It may not be out of place if I add to these notes that about twelve

miles from Dambool, on the road to Anuradhapura, or rather to the eastern side of the road, I accidentally met the ruins of an ancient native road, which tradition asserts once united Pollonnaruwa with a dagobah in the vicinity. A bridge of massive granite over a rivulet, now dry, first attracted my attention. It was composed of upright blocks of granite about eight feet long, supporting other horizontal blocks about four feet broad, seven feet long and a foot thick. On each side of this bridge the road might be traced for a considerable distance by its elevation above the plain around. The new road to Anuradhapura cuts through it, and on each side it presents of course merely the appearance of an ordinary mound of earth.



*Some further Notice of the Species of Wild Sheep, by ED. BLYTH, Curator of the Asiatic Society, &c. &c.*

“No great while ago,” writes Mr. Hodgson, (*J. A. S.* XV, 342,) “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.”

The “signal error” adverted to has not, however, been yet set right by Mr. Hodgson. It is true that I did follow my predecessors in stating that the Goats are devoid of the suborbital and interdigital pores which occur in the Sheep; and I have since stated (in XV, 154,) that the absence of the interdigital sinus affords an easy method of distinguishing a leg of goat mutton from one of *mouton proprement dit*. But Mr. Hodgson states (XV, 337), that “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," &c. &c. Now I had several times even pointed out, to different friends, who have accompanied me to the Calcutta bazar, how to distinguish legs of Sheep mutton from legs of Goat mutton, by the invariable token here alluded to; and I therefore felt some surprise at Mr. Hodgson's assertion: but as he recommends me to "look at nature, instead of books," and as some tame Goats were immediately at hand, I of course had them caught and examined them; when I found that they do possess interdigital pores on the fore-feet only—not on the hind-feet,—a piece of information which I infer to be as new to Mr. Hodgson as the existence of pores on the fore-feet proved to myself. But I say nothing about an "important oversight," on his part, in having (when once about it) overlooked the circumstance of the non-existence of interdigital pores on the hind-feet of the common Goat: but will merely remark on the probability that *Ammotragus* was not so "misdiscriminated by Mr. Blyth," after all, but that it will be found to differ from the Goats in having, like other Sheep, interdigital orifices on all four legs.

We next come to my "oversight equally important," in the fact of my not having mentioned that *O. burrhel* was deficient in the suborbital sinuses, any more than Mr. Hodgson mentioned the same deficiency in *O. nahoor*, in his elaborate and latest description of the latter species, published in X. 231! To be sure, Mr. Hodgson alludes to my being "a professed naturalist:" but at the time I drew up the 'Monograph of the species of wild Sheep,' I was surely, in every respect, quite as much an amateur in the matter as himself, either then or now, and was very considerably his junior in such investigations. The different new species described in that paper are, indeed, the first novelties in the class of mammalia which I ever published!\* Nevertheless, I cannot think of admitting the implied distinction between an amateur naturalist and a "professed" one. Whoever undertakes to describe new species of organized beings, by so doing *professes* himself a naturalist;

\* And, therefore, I maintain that the somewhat harsh (not to say captious) tone of Mr. Hodgson's remarks on this labour of mine is altogether uncalled for, under the circumstances. Can Mr. H. cite a paper of his own which shows, on the face of it, anything approaching to the same amount of research amongst the labours of his predecessors? Or one that could have cost himself more labour in other respects! Or that has added more to the previous knowledge of the subject?

and credit will of course be given him for having duly studied the writings of his predecessors, or he is unqualified for the task, and should be content to borrow the assistance of those who do profess to have done so.

But I am pleased to see that Mr. Hodgson now admits my *Ovis burrhel*, as a good species: because, not very long ago (in XI, 283), he stated, positively, that "Mr. Blyth's *Ovis burrhel* is no other than my *náhóor*. Mr. Blyth's" (*i. e.* the Zoological Society's) "specimen of which was dyed brown by a preservative lotion that was applied by the killer and curer of it, Lieutenant Smith, 15th Native Infantry!" (Vide also note.) Captain Smith has lately favored me with sundry items of information respecting Himalayan mammalia; comprising a notice of *O. burrhel*, nobis, as distinct from *O. náhóor*, which I shall presently have occasion to cite.

In the course of a note which I appended to Mr. Hodgson's above quoted remark on my *O. burrhel*, I took occasion to observe (XI, 284, and there is another reminder in XV, 153), that "With respect to *O. ammonoides*, Hodgson, it will be remembered that I had dedicated this animal to Mr. Hodgson himself, terming it *Hodgsonii*, some time before the publication of the name *ammonoides*," *i. e.* in the 'Proceedings of the Zoological Society' for July 1840, whereas Mr. Hodgson's paper descriptive of *O. ammonoides*, and published in the Society's Journal for 1841, p. 230, bears his own date of March for that year. I cannot, therefore, understand upon what principle Mr. Hodgson adheres to the latter appellation; and the more especially as he is known to be particularly tenacious of his own nomenclature.\*

\* On the same occasion, I pointed out that Captain Hutton's *Ovis cycloceros* had been priorly named by me *O. Vignei*: and Captain Hutton, accordingly, adopts the latter name in preference to that of his own coining, in XV, 152. Nor is the above the only instance of the kind I have reason to complain of, on the part of Mr. Hodgson, who must show a little more respect for the claims of others if he expects his own to be upheld. For example, some time ago Mr. Hodgson will remember sending me a bird by the name *Chelidorhynx chrysochistos*, which I informed him that I already had in print, by the name *Rhipidura hypoxantha*, XII, 935: and in correcting the proof, I inserted an acknowledgment of the receipt of Mr. Hodgson's specimen (in the following page), adding that I then adopted his genus *Chelidorhynx*; which, however, has since proved to be true *Rhipidura*, as opposed to *Leucocerca*, Swainson (vide XV, 290). Yet Mr. Hodgson had no compunction in publishing his *Chelidorhynx chrysochistos* as a *new species* in the 'Proceedings of the Zoological Society' for 1845, p. 32; and at p. 26 he

And I must further take the liberty of recalling Mr. Hodgson's remarks (in X, 915), concerning a critique on his own labours. "It is well known," writes Mr. Hodgson, "that when Mr. Ogilby wrote, several successive catalogues of mine, embodying the improving results of new information, and greater skill in the appreciation of it, existed; and had Mr. Ogilby consulted the whole of them, *according to their dates*, he might have spared a great part of his cursorious remarks." Thus, with regard to tame Sheep with naturally short tails, Mr. Hodgson will find, in XV, 153, my printed statement that—"The fighting rams of India seem to me to be of a race descended from *Ovis Vignei*, of which they preserve the crescent horns and *short tail*:" and in the following page,—“Whether any *long-tailed* Sheep, with horns describing more than a spiral circle, could have descended from the crescent-horned and short-tailed *O. musimon* (which is closely allied to *O. Vignei*), is extremely doubtful.” Mr. Hodgson might, therefore, to be consistent with himself, have qualified a little his remarks on this subject (in XV, 343).

We would now return to the paragraph which I commenced by quoting, and examine whether really I founded "many species" of wild Sheep "upon an inspection of the horns solely:" but I will first remark that Mr. Hodgson has himself founded various species of mammalia upon what I consider much less satisfactory data than those afforded by the horns of different wild Sheep, which, in general, (as must be admitted by all who are acquainted with them,) supply exceedingly good specific distinctions.

*Martes* (?) *tufæus*, H. (XI, 281). "Have several fine skins from Lassa and Seling, *but as they want the teeth and talons and tail*, I can but conjecture from information and the specimens as they are, that the animal is a Marten. Thus judging, I should say that the *Toufee* has much of the size and proportions of the last or *flavigula*, but its pelage is much richer and softer. \* \* \* Probable length from snout to vent 20 to 22 inches, mean height 7," &c. Now there is a Tibetan Marten which I have lately had occasion to describe, which I feel very confident to be this *M. tufæus*: but its size does not exceed that of the two European Martens (to which it is very nearly allied), gives, as another new species, *Dimorpha? rubrocyanæ*, H., which I likewise distinctly informed him was my *Muscicapula hyperythra* (vide p. 127, ante)!!!

being considerably smaller than *flavigula*; and I infer, therefore, that the dimensions above given are those of *exceedingly stretched* skins.

“*Mustela (?) calotus*, II.” (*Calcutta Journal of Natural History*, II. 221, and pl. IX; a figure which I, for one, would certainly never have ventured upon publishing). I can give no opinion of my own respecting this animal; but in Mr. J. E. Gray’s ‘List of Specimens of the Mammalia in the British Museum,’ (p. 139,) I see “*Mustela calotus*, Hodgson,” placed as a synonyme of *Sciurus europæus* !!!\*

In XI, 286, two Tibetan animals are enumerated as—“39. *Equus*, wild; *E. kiang*, Moorcroft; † *E. hemione*” (quære *hemionus*?), “Auct? Found generally throughout Tibet. I have no specimen.”—“40. *Asinus equioides*, mihi. Species want verification, spoken of by Moorcroft and others: called wild Ass by the Tibetans, and said to be common on the plains of Tibet. Possess no specimen.” Mr. Hodgson, nevertheless, does not hesitate to give a name to the latter animal, which I am satisfied refers to *E. hemionus*, or the *Kiang* (vide XV, 146); while the other is, I suspect, the same wild type of *Equus caballus* as was described, and the foal figured, by Pallas.‡

\* Mr. Gray’s note of interrogation refers obviously to the work in which *M. calotus* is published, not to the identification of the animal.

† Vide Moorcroft’s Travels, I, 312, and 442, and other notices in the same work. *E. B.*

‡ While this article was proceeding through the press, the 28th No. of the *Calcutta Journal of Natural History* came to hand, containing a paper by Mr. Hodgson, entitled “Description of the Wild Ass and Wolf of Tibet,” in which he now states—“There is, I believe, no species of wild Horse in Tibet, and only one species of wild Ass, viz., the *Kiang* :” and though fully aware that Moorcroft had named this animal *Equus kiang*, and that he had himself termed it *Asinus equioides*, it is now a third time wantonly named *Asinus polyodon*! The last name, too, being founded on the mistaken supposition that the little præmolar in front of the series of upper grinders in the *Kiang* is peculiar to that animal; whereas (it is needless to remind the generality of Zoologists) this tooth is normally present in the Horse and Ass (!!), if not in every other species of the genus; but is subject to be occasionally lost, when its socket becomes gradually filled up, and disappears totally. Referring to five skulls of Horses in the Society’s Museum, I find this tooth or its socket present in three of them, but lost and the socket completely atrophied upon one side of one of these three; and in an Ass’s skull I find it on both sides, as in Mr. Hodgson’s figure of the series of upper molars of the *Kiang*: so much, then, for the name (or rather synonyme) *polyodon*! With regard to Pallas’s assertion (as quoted by Pennant and Shaw), that the *hemionus* has only 38 teeth in all, or two fewer than in the Horse and Ass, it is difficult to imagine which are here meant as being deficient, in addition to the two little upper præmolars; and I confess to entertaining doubts on the subject. The colour of the *Kiang*, I can safely assert to be ab-

Mr. Hodgson's subgenus *Pseudo-cervus* (X, 914, and XI, 284), refers, in my opinion, decidedly, to a young truly elaphine Stag (*Cervus Wallichii*, Duvancel), of the third year; the horns of which had not attained the size and figure which they would have exhibited in the mature animal. It is most probably identical with the great truly elaphine Stag of Kashmir. So much for this alleged *subgenus*!\*

Indeed, Mr. Hodgson should be the very last person to complain of "innumerable vague and shadowy species" being "the plague of Zoological science," (vide XV, 335,) inasmuch as he has burdened science with a frightful list of cumbersome and useless synonymes (vide for instance, those reduced in my papers on birds), based upon no distinctive characters whatever. Witness his catalogue of Nepålese Mynahs, (V. 771 : )† and even when convinced of error, instead of hastening to

*solutely similar* to that of several specimens which I have seen alive of *Equus hemionus* : the Society's skin of the former is in summer garb ; and I have repeatedly witnessed, in England, the seasonal changes of the *hemionus*, which are just as Mr. Hodgson has described those of the Kiang. In fact, my opinion remains unchanged that the Kiang will prove, upon actual comparison, to be identical with *Equus hemionus*.

Mr. Hodgson's *Lupus laniger* is another familiar acquaintance, of which he might have seen three fine mounted skins, in different states of pelage, when he visited the Society's Museum : but I cannot accede to his opinion that it has any claim to be regarded as a peculiar species, after what I have seen of the variation of Wolves of different countries, and even of the same country ; but I must reserve the discussion of this subject for a more convenient opportunity.

Some remarks on the transverse shoulder-stripe incidental to the Asinine subgroup of *Equus*, will be found in a note to vol. XI, p. 286 : since writing which, I have observed a domestic Ass with a second transverse stripe, and another with four (!) and not *equidistant* cross-stripes, varying too in length, and the last crossing the loins. Buchanan Hamilton, I think, somewhere states that the Asses of Madras are sometimes without any cross-stripe : and finally, I may remark that those of Lower Bengal are very commonly more or less barred with black on the limbs, at all ages. That the supposed *Equus asinus* (ferus) of Prof. Gmelin was an individual variety of *hemionus*, with a small cross-stripe on the shoulders, I scarcely feel any doubt whatever.

\* I have indeed been assured that Mr. Hodgson's *Cervus affinis*, or great elaphine Stag of the Nepal sål forest (X, 721), was founded on a skull and horns purchased from a ship in the port of Calcutta by the Nepal Vakeel, Luckman Pardia, who presented it to the then prime minister of Nepal, Bim Sen, by whom it was presented to Mr. Hodgson. It certainly would appear that Mr. H. has never since been able to procure another specimen.

† " We have seven species," writes Mr. Hodgson, " all abundant in Nepal.—1. *religiosa*.—2. *crstelloides*, (nob.)—3. *Tristoides*, (nob.)—4. *sylvestris*, (nob.)—5. *Affinis*, (nob.)—6. *Communis*, (nob.)—7. *Terriclov*, (nob.)—And Mr. Hodgson has since

relieve our catalogues of the incumbrance of fictitious species, Zoologists have great reason to complain that he suffers the misleading synonymes of his own imposing to remain permanently uncorrected. Thus, when I privately informed Mr. Hodgson that his *Astur indicus*

termed another—" *Gregicolus*, (nob.)"—In all seven new names (to pass over the extraordinary construction of some of them)!

"Of these," it is added, "2 and 3 are nearly allied to *crisatella* and *tristis*; 4 and 5 to *pagodarum* and *malaburica*. The 6th inclines much to *Sturnus*; and the 7th, a very osculant species, has a very considerable resemblance in the form of its wings, tail and legs, to *Cinclusoma*," (indeed it has no sort of relationship with the Mynahs).

Not one of these names has since been rectified, except by myself; though referring to some of the commonest birds of the whole Bengal Presidency. Thus, *Religiosa* is the common Hill Mynah, so often caged, and now standing as *Gracula affinis*, A. Hay, (XV, 32.) *Cristelloides* is another species first distinguished by Lord Arthur Hay, (vide XV, 33,) from *Acridotheres cristatellus*, (L.), of China; and it now stands as *Acr. griseus*, (Horsfield): though Dr. Horsfield was not justified in changing the name of his Javanese bird to *griseus*, since he believed in its identity with the Chinese *crisatellus*. *Tristoides* is the common House Mynah, *Acr. tristis*, (L.), so abundant throughout the country. *Gregicolus* is *Acr. ginginianus*, (L.), or the common Bank Mynah. *Communis* is *Sturnus contra*, Auct., now termed *Sturnopastor (contra)* by Mr. Hodgson. *Sylvestris* is *Sturnia pagodarum*, (Gm.), v. *melanocephala*, (Bahl). *Affinis* is *St. malaburica*. And *Terricolor* is the 'Brown Indian Thrush' of Edwards, first identified as such by myself, and also first distinguished by myself, (not by Mr. Hodgson, whose name I have nevertheless adopted,) from the nearly allied *Malacocercus striatus*, Swainson, of Ceylon.

Now, what benefit to science, it may well be asked, accrues from this random application of a host of new names; without so much as a clue to the particular species they refer to? Or what skill is required in the manufacture of such names? It is true that they are not binding in the least, unless some kind of intelligible description, or distinctly recognisable figure, is attached to them; but even in the latter case it is scarcely fair that those who first really discriminate species from their affines should be deprived of the right of naming them, because they had previously been described perhaps at random, without any trouble having been taken to determine whether they really were new—or perchance even familiarly known, as were most of Mr. Hodgson's Mynahs just referred to.

There is an old story that the most unskilful marksman may hit his object occasionally by flinging a handful of missiles at it together: and so by affixing new names to a multitude of species thus at random, and describing them at a venture, the merest tyro may chance to have his vanity gratified, sometimes, by seeing his name quoted as the describer of an actual novelty, regardless of the number of synonymes to which also he finds his name attached, and of the confusion which he thus oftentimes introduces.

It would be a beneficial rule if the merits of a describer of new species were to be estimated by the number of those which he succeeds in establishing, minus or deducted by that of the synonymes which he has applied to previously known species, or at least of such as remain uncorrected by him after a given period: and the permanent establish-

had been previously named *Falco trivirgatus* by Temminck, that gentleman replied that he had been long aware of it ; but he has certainly never given publicity to the information (as I hastened to do, in XI, 5). As Mr. Hodgson has not scrupled to refer to my unpublished opinion (of which more presently), respecting *Antilope gutturosa* (XV, 335), there can surely be no occasion for my refraining to publish what I have just stated of *Astur trivirgatus*.\*

But enough of this *tu quoque* style of argument : though a little *rebutting* is fairly allowable in a contest wherein rams' horns are concerned ! My paper on the wild Sheep was originally published in the 'Proceedings of the Zoological Society' for July 28, 1840 ; was republished in Taylor's 'Annals and Magazine of Natural History,' Vol. VII, pp. 195, 248, with a few additional notes, and a plate representing the horns of some of the species ; and was again republished, with further additional notes, in the Society's 'Journal,' X, 858, to which last publication I shall refer, for the convenience of most readers in India. Let us see whether "many" of the species were founded "upon an inspection of the horns solely."

1. *Ovis Polii*, nobis. Founded on a magnificent frontlet and horns brought by Lieutenant Wood from the Pamir steppe ; combined with the notice quoted from Mareo Polo, which refers undeniably to the same animal. Of the distinctness of this superb species, there can be no doubt whatever ; and the frontlet is figured in Taylor's plate, figs. 1 and 2.

2, 3, and 4. *O. ammon*, Pallas ; *O. montana*, Desmarest ; and *O.*

ment of a doubtful species named by another, or the reduction of such to the rank of a synonyme, should be regarded as a labour of equal or even higher merit than the promulgation of a species previously undescribed. Such a rule would furnish a criterion by which to appreciate the labours of a naturalist in this line, by enabling us to strike a balance between the amount of good he may have effected by adding to the stores of knowledge, and that of evil which he has introduced in the shape of confusion. It would check much recklessness in the imposition of new names which now unhappily prevails in several quarters.

\* It is true that the name *Astur indicus* was published anonymously, in the 'Bengal Sporting Magazine,' and therefore the only legitimate sponsor that can be quoted for it is the editor of that periodical for the time ; but it has nevertheless been repeatedly quoted as Mr. Hodgson's species, and has been acknowledged as such by him, and therefore it surely behoved Mr. Hodgson to set matters right without delay when he learned that it had been described by Temminck.

*nivicola*, Eschscholtz. The first of these I had never seen, and could refer to merely : the second I was well acquainted with : and the third I only knew from M. Eschscholtz's work, but referred also to a notice of it in the narrative of Kotzebue's voyage. The Society's Museum now boasts a very fine specimen of *O. ammon*,\* which I am enabled to assert, positively, is distinct from *O. montana* of North America : and I incline to refer to it, though with considerable hesitation, the horn in the Museum of the Royal College of Surgeons, London, (vide Taylor's plate, figs. 3 and 4,) for which I suggested the provisional name *sculptorum* ; and without any hesitation Mr. Hodgson's large species, first provisionally named by me *Hodgsonii* upon Mr. Hodgson's description of the horns in the 'Asiatic Researches,' and subsequently by him *ammonoides*.† Pallas's figure of *O. ammon*, copied into various works, though sufficiently rude, indicates certain characters which are at once recognised in the Society's specimen ; such as the lengthened white hair on the fore-neck and breast, the corresponding hair in *O. montana* being blackish ; and there is no reddish-black tinge on the face of *O. ammon* : the horns are badly represented ; but, with a specimen for comparison, it is readily seen that the errors are due to want of skill in the draughtsman. These horns are considerably less massive than in *O. montana*, and their section is very different, and especially the view of them as seen from above : but they are more prolonged, in an inverse ratio to the decreased bulk towards the base ; though considerably less prolonged and thicker at base than in *O.*

\* Presented by G. T. Lushington, Esq., who has announced to me the despatch of four more perfect skins : we have also an imperfect skull of a young male. To Mr. Lushington the Society is likewise indebted for a skin of the Kiang received, and for another and more perfect specimen now on its route ; with numerous other valuable contributions.

† Mr. H. even confounded *O. ammon* with *O. nahoor*, in *As. Res.* XVIII. pt. II, 135 ; and the mistake was first pointed out in my paper : but as he described the horns of quite a young ram (vide his plate) as "accurately triangular" (i. e. *equilaterally*?) I did not feel justified in identifying the species with *O. ammon* : stating that even the "Rocky Mountain species would, at the same age, have much compressed horns, far from attaining to an equilateral triangle ;" to which I added that—"Should a true species be here indicated, as is not improbable, distinct from *O. ammon*, I propose that it be dedicated to that assiduous investigator of Nepàlese Zoology, and be accordingly termed *O. Hodgsonii*!" My opinion now, that it is, positively and decidedly, identical with *O. ammon*, will of course be received *quantùm valet*, in opposition to that of Mr. Hodgson ; who, however, has not advanced a single reason for supposing otherwise.

*Polii.* The most marked contrast from those of *O. montana* consists in the fact that the great bulge in the upper portion of the posterior surface of the horn in *O. montana* (which I refer to from memory only, though with the utmost confidence), is comparatively little more than indicated in *O. ammon*; and the rugæ are particularly large in the latter species. Comparing the Society's stuffed specimen with Mr. Hodgson's figures and description of his (so called) *O. ammonoides*, the specific identity is beyond all question; and it follows that, as in *O. montana*, some individual variation occurs in different specimens. Thus, the horns of the Society's specimen are rather more bulky than those figured and described by Mr. Hodgson, (though, by his own showing,\* he has represented them too small in his plate III). In the Society's animal, the horns had about completed their fifth year of growth; and measure round the curve (following the upper angle from the base—where the two are nearly in contact), thirty-three inches and a half, of which the years of growth are successively seven inches, eight and a half, nine, five and a half, and the basal (perhaps incomplete) four and a half; the circumference at base is eighteen inches, width of anterior plane at base four inches, and depth at base posteriorly six inches and a half; greatest width apart of the horns, measured externally, twenty-three inches; the tips eighteen inches apart.† Length of ears four inches and a half; and of tail underneath (where nude of hair) fully three and a half, exclusive of its upper vesture. The total length of this specimen, when fresh, would have been fully six feet; but as none of its bones are preserved, except the horn-cores, I will not (with the example of *Martes tufceus* before me) pretend to give the minutiae of its admeasurements.

5. *O. californiana*, Douglas. Description cited from 'Zoological Journal;' and the horns fully described by myself, and figured in Taylor's plate, fig. 5. An unquestionable species.

\* "Head, to base of horn, one foot. Length of horn, by curve, three feet one inch." These proportions are not preserved in the plate, especially in the lateral view of the head. How is it, too, that the caudal disk is not represented in the figure of the female?

† In the skull of a young ram, with horns in their third year of growth, these curve round outwards to the tip, where they commence to gyre forward and even somewhat inward, as in the other, the tips ultimately turning outward in the old animal. In this specimen, each horn measures 20½ inches round the curve, and their tips are that distance apart: the first year's growth measuring 11½ inches, and the second year's only five inches.

6. *O. nahoor*, Hodgson. Described from specimens, amongst which was a hornless female; and first clearly established as distinct from *O. ammon*!\*

7. *O. burrhel*, nobis. Described from a fine male; and the horn of a still older one. It would seem, however, that I was wrong in assigning to it a loftier altitude of haunt than that of *O. nahoor*. Capt. Smith informs me that *O. burrhel* and *O. nahoor* keep always in separate flocks, and are never seen on the same feeding-ground; the Burrhel seldom ascending above 16,000 feet elevation, while the Nahoor goes much higher. Both bleat like domestic sheep. Near the Boorendu Pass, the Burrhel is much more plentiful than the Nahoor; but the latter is far more extensively diffused over the Himalaya generally. At the close of summer, when the snow is nearly melted away, a very nutritious grass grows abundantly under a thin coating of snow, and both species become exceedingly fat by feeding upon it, i. e. in the months of August, September, and October. At this time they can only be compared to the prize animals exhibited at the Smithfield shows, and they run with considerable difficulty, though still being far from easy of approach. In winter, when snowed in, they actually browse the hair off each other's bellies, many together having retired under the shelter of some overhanging rock, from which they come out wretchedly poor. They produce one or two young, (commonly two,) in June and July. In Taylor's plate, the representations of the horns of these two species were unluckily transposed; No. 6 referring to *O. burrhel*, and No. 7 to *O. nahoor*.

8. *O. cylindricornis*, nobis. This is the least satisfactorily established of all the species in my monograph: it resting on a communication from Col. Hamilton Smith, relative to a species which must have been very different from either of those known to me, though described from memory only by Col. H. Smith (one of the most experienced of Zoologists in the history of the *Ruminantia*.)

\* I may therefore legitimately claim credit for being the first to *discriminate*, in print, not only the three Himalayan, but all the Asiatic species of wild *Ovis* known up to the present time: unless *O. nivicola* of Kamtchatka be considered an exception, though M. Eschscholtz does not explain in what respects this differs from *O. ammon* and *O. montana*; from the latter of which it would seem only to deviate in its inferior size, and in wanting the pale caudal disk?

9. *O. Gmelini*, nobis. Described from very fine specimens of the male, female, and young; and identified with a species long ago rudely figured by the younger Gmelin, and the horn by Pallas; and Gmelin's description of the habits quoted, with further original information. Head figured in Taylor's plate, No. 8.

10. *O. Vignei*, nobis. Described from a coloured figure taken from life, and from two pairs of horns, the distinctness of which from those of all the other species is most obvious: vide Taylor's plate, fig. 9. A skin of this animal was described by Pennant as the "Bearded Sheep," but was confounded by him with *O. tragelaphus* (vide X, 877); and there is a brief notice and very passible figure of the species, taken from an animal killed in the vicinity of Persepolis, in Lieutenant Alexander's 'Travels from India to England,' &c. (1827.) It again appears as the "Wild Sheep of the Hindu Koosh," described by Capt. Hay, *J. A. S.* IX, 440; and as *Ovis cycloceros*, Hutton, 'Calcutta Journal of Natural History,' II, 514, and pl. XII, being again noticed by the latter gentleman in *J. A. S.* XV, 152. It may be observed that Capt. Hay remarks this species to differ from *O. tragelaphus* "in having a lachrymary sinus;" and Capt. Hutton also describes "a moderate-sized lachrymal sinus, which appears to secrete, or at all events contains, a thick gummy substance, of good consistency, and of a dull greyish colour. The Afghan and Belooché hunters," he adds, "more especially the latter, make use of this gum, by spreading it over the pans of their matchlocks, to prevent the damp from injuring the priming." We may, therefore, rest satisfied of its existence in this species, which is nevertheless most closely allied to the next.\*

\* In a catalogue of Mr. Hodgson's collection presented to the British Museum, prepared by Mr. J. E. Gray, who has obligingly presented me with a copy of it, just received, I find *O. Vignei*, Blyth, set down as a synonyme of *O. ammonoides*, Hodgson, and *O. Hodgsonii*, nobis, also cited, either of which names has the advantage of priority over that of *ammonoides*, supposing the latter to refer to a species distinct from *O. ammon* but Mr. Gray might as well identify *O. musimon* or *O. tragelaphus* with *O. ammonoides*, and reduce all the wild species of *Ovis* to one, as bring together two such widely different species as he has here done. He might just as well unite *Cervus capreolus* with *C. elaphus* or *C. tarandus*!

So, in his synonymes of *Presbytis eutellus*, he not only erroneously refers *Pr. schistaceus*, Hodgson, to this Bengal animal, but the much more different *Pr. hypoleucos*, nobis, peculiar to Malabar and Travancore, and which Mr. Martin introduced as a variety of

11. *O. musimon*, L. Described by me from life, and a further notice given in *J. A. S.* X, 878. "The Argalis and Moufflons (not to mention the *Tragelaphi*),"\* writes Mr. Hodgson, "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?" To this I can reply, that the Prince of Canino states that it is so devoid:† but however this may be, if Mr. Hodgson wishes to subdivide the group of wild Sheep, he is altogether wrong in approximating the Nahoor and Burrhel to the

*Pr. Johnii*! This, too, is done without so much as a note of interrogation; while to the considerably more nearly allied *Pr. anchises*, Elliot, he does affix a mark of doubt—it being, however, with *Pr. priamus* of the Coromandel coast and Ceylon, distinct also.

With equal positiveness, in his 'Catalogue of the Species of Mammalia in the British Museum,' Mr. Gray identified *Bos gaurus* and *B. frontalis* (not to cite other instances of like precipitancy)! But he has now Mr. Hodgson's specimens of skulls of these two *Boves*, and, as a matter of course, enumerates them as separate species. So, with adequate data to form an opinion upon, will he by and bye admit *Ovis Vignei* and the different Monkeys alluded to; for to imagine otherwise will then even appear preposterous!

It will be necessary for me to go critically over this catalogue of Mr. Hodgson's species, upon which I have more than a few remarks and corrections of nomenclature and of synonymes to offer; but I shall confine myself here to one further remark, relative to the particularly cool manner in which *Anthus striolatus*, Blyth, is placed as a synonyme of *A. rufescens*: the fact being, that my description of *A. striolatus* is not even yet published, and the name could only have transpired through Mr. Jerdon's bare mention of it, in the 'Madras Journal' No. XXXI, p. 136; unless, indeed, Mr. Jerdon has himself forwarded specimens of this rare Indian Pipit to Europe, in which case I do seriously object to provisional and unpublished names of my coining being thus introduced to the world as empty synonymes.

Mr. Gray has, in fact, placed not a few synonymes to my credit (or discredit) in this catalogue, of which I shall hasten to disavow the paternity!

\* What does Mr. H. mean by the *Tragelaphi*? *Tragelaphus*, Ham. Smith, stands for a genus of Antelopes, of which the *Guib* and *Boschbok* and Ruppell's *Decula* are the types. If he wants a subgeneric name for the African Wild Sheep, he is perfectly aware that I have termed it *Ammotragus*. How would he approve of his *Pseudois* being thus contemptuously passed over?

† Vide Jardine's 'Naturalists' Library,' Art. Moufflon. I have some impression, nevertheless, of having observed small ones; which is rather confirmed by Mr. Ogilby's remark, in his 'Mammalogy of the Himalaya,' (vide Royle's Botany, &c.) that "*O. nahoor* is intermediate in character between *O. musimon* and *O. tragelaphus*, which latter species it resembles in the form of the horns" (!), "and in the absence of the crumens, or tear-pits, which distinguish the rest of the genus." Now a specimen of *O. musimon* was set up in the museum of the Zoological Society, at the time that its then Secretary, Mr. Ogilby, indited the remark here quoted.

Moufflon of Corsica. These two Himalayan species, instead of being "complete Moufflons," are (so far at least as their horns are concerned) most particularly unlike *O. musimon*, and form a little group *per se*, unless *O. cylindricornis* should prove to range with them: and the Moufflon is quite excluded from his definition of "round-horned" Sheep, for which group I presume the appellation *Pseudois* is proposed. Their being "furnished with a well developed tail," (really there is no such marked difference in this respect,) will not exclude the Californian Argali, the tail of which is described as "eighteen inches long!" Yet the horns of this animal are most typically those of an Argali (vide Taylor's plate)! Mr. Hodgson suggests "the generic appellation *Pseudois*, lest," he adds, "as has too often 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."\* But if any discovery is claimed in the present instance, it remains to show in what it consists: for Mr. Ogilby long ago remarked the absence of suborbital sinuses in *O. nahoor*; and the group formed by *O. nahoor* and *O. burrhel* was distinctly indicated in my monograph (vide *J. A. S.*, X, 867), being estimated there, as I still think, at its true value. Mr.

\* By the way, how is it that these complaints, so many times repeated, and bordering somewhat on the querulous, should be altogether peculiar among present cultivators of Zoology to Mr. Hodgson? Does Mr. H. complain of my having chanced to anticipate him in the publication of *Rhipidura hypoxantha* and *Muscicapula hyperythra*? Or in first discriminating in print the *Ovis nahoor* from *O. ammon*?—Or, supposing that I knew of an animal of which I was well aware that Mr. H. possessed the female only, and that he was waiting to procure a male in order to satisfy himself whether or not it differed from a certain other species; supposing in such a case that I were to intercept the male which otherwise would have been transmitted to him, and immediately rush into print with a description of both sexes and a "mili" attached, and in that description were even to refer to Mr. Hodgson's unpublished opinion respecting the species, which opinion he had been cautious not to commit to print!—Mr. Hodgson might perhaps be justified in saying that I had been guilty of much discourtesy towards him, and have forfeited my claim for courtesy in return? Even such, *mutatis mutandis*, is the history of *Antelope (Procapra) picticaudata*, Hodgson! Dr. Campbell kindly forwarded the female of this animal some time ago to the Society's Museum, and hoped soon to be able to procure and send a male; but Mr. Hodgson happened to be at Darjeeling when Dr. Campbell succeeded in procuring two males and a female, and has assuredly taken due (or undue) advantage of the accident of his local position! Who here "steps in to name and classify" &c. &c.?

Hodgson will find it necessary to become familiarly acquainted with many more Species of wild Sheep, than those found upon the Himalaya, if he thinks of subdividing the series otherwise than most crudely and unsatisfactorily; and when he has properly studied the whole genus, even as now known, he will find its subdivision considerably more difficult than may seem to him at present, and he will then be able to declaim with a better grace on the short-comings of others, who may have opportunities and local advantages which he has not, as he likewise enjoys some which they would assuredly not fail to turn to due account.

Should it prove that *O. musimon* is really devoid of the facial cavities, the value of this character would fall to a mere specific distinction; for however the wild Sheep may be arranged into minor groups, the *O. Vignei* (which has the sinuses) could scarcely be placed in a different subdivision from *O. musimon*. And to the same group must be referred *O. Gmelini* and *O. ophion*, though together perhaps forming a subsection of it! Both in *O. Gmelini* and *O. Vignei*, we find indications of affinity with the African *O. tragelaphus*.

12. *O. ophion*, nobis. Founded on the coloured figure and description, by M. M. Brandt and Ratzeburgh, of a specimen in the Berlin Museum.

13. *O. aries*, L. The domestic Sheep. Several wild types, as I still strongly suspect: but none of those above enumerated; unless, to a partial extent, *O. Vignei*, though even this very doubtful.

14? *O. (?) Ixalus probaton*, Ogilby. Described from a hornless specimen, which is at least closely allied to *Ovis*.

15. *O. tragelaphus*, Pallas. A well known species. Described from specimens, observed both alive and in museums.

The reader may now judge of the data upon which I founded my various new species of wild *Ovis*; and equally of Mr. Hodgson's disparaging assertion of my "founding many of them upon an inspection of the horns solely." Such assertions, if not promptly repelled, as I trust this has been, are calculated to damage the reputation of a working zoologist, who should endeavour to do the utmost that is *fairly practicable* with the means at his disposal; but who should know better than to transgress the bounds of moderation in these matters, as by publishing such a name as *Asinus equioides* to the world, upon

the data on which that name is sought to be established, and then ludicrously complain of "innumerable vague and shadowy species" being "the plague of zoological science."

Finally, respecting *Antilope picticaudata*, Hodgson: having only the skin of a female to judge from, I consider myself perfectly justified in having provisionally regarded it as *Antilope gutturosa* of Pallas, although I did not choose to go the length of publishing that opinion, as Mr. Hodgson has done for me. In the first place, both animals are from Chinese Tartary; secondly, both differ from every other known Antelope, excepting the Prong-horn of North America, in having a white caudal disk, as in the Argali Sheep, various true elaphine Stags, &c.; thirdly, the rest of the colouring of the Society's specimen corresponds with the described summer dress of *A. gutturosa*; fourthly, their short tails are similar; fifthly, the females of both are hornless; sixthly, as regards the size of *A. picticaudata*, how was I to know that the female in the Society's museum was full grown, it having no skull to guide me; seventhly, *A. gutturosa* is described to have slight tufts of hair on the knees, scarcely sufficiently long to deserve the name of brushes; and though I could scarcely make these out distinctly in the Society's specimen, I thought they might perhaps be more developed in another; and eighthly, the suborbital sinus in *A. gutturosa* is described to be small, and I could merely distinguish a small bare place in lieu of the sinus on both sides of the face of the Society's specimen; moreover, we know that this sinus becomes more developed at the rutting season, and at other times it may be so slight as to become obliterated in a dry skin. As for the swollen larynx, it is as much peculiar to the male sex, as are the horns and præputial gland; and even the larynx would, I doubt not, as in *A. cervicapra*, be much more developed at the rutting season than at other times, and probably the præputial gland also. I should therefore have considered myself altogether disqualified from assuming the tone which I now feel myself entitled to hold, if I had added to the "innumerable vague and shadowy species" which Mr. Hodgson so consistently denounces, by describing *A. picticaudata* as a species distinct from *A. gutturosa*, of which, indeed, I am still very far from being satisfied, as I think it yet requires to be examined in the recent state, and the males during the height of the rutting period.

To conclude, if Mr. Hodgson had preserved the amenities of fair and amicable discussion, in his various depreciatory remarks, I should have forborne, as hitherto, from calling special attention to certain of his own very marked inconsistencies, to use the mildest expression; and should have even passed quietly over his appropriation of the Tibetan Antelope (if it *really* prove new): but in disregarding the rules of courtesy towards me and others, he has invited a plain-spoken rejoinder, which I have reluctantly felt myself compelled to issue *sine mordé*.

*P. S.* It is due to Mr. Hodgson that I should here notice, and I have unfeigned pleasure in doing so, that I have just received from him a communication (dated March 24th,) in which he has, in the most handsome manner, spontaneously tendered his regret, if, in the heat of composition, he may have penned aught that I might consider as discourteous; and I rejoice that it is in my power to append this trait of good feeling on his part, which I am sure that he will have the generosity to exhibit further, should he haply think my reply at all acrimonious, or written under excited feelings.\*

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*Instructions how to take Correct Facsimiles of Inscriptions, by Captain  
KITTOE, 6th N. I.*

To take correct facsimiles without reversing the writing which the common method of damping and pressing the paper on them, or of blackening the stone produces, the following method is recommended.

Heat in a ladle, and mix, equal parts of spirits of turpentine, linseed oil and bees wax, with sufficient red lead or ochre, ground as fine as possible, and let it cool. Then rub this into fine Serampore or bazar

\* We regret that Mr. Blyth has deemed it necessary to couch his defence in terms of asperity. As his opinions were impugned in a recent paper by Mr. Hodgson, he has an undoubted right of rejoinder, for the tone of which he is of course responsible. But we protest against the repetition of such jousting in the *Journal*, the high character and dignified position of which are in no small measure attributable to the absence of every semblance of personality from its pages; a circumstance most honorable to the cultivators of science in this country, and not easily paralleled in the history of any European *Journal*. Our contributors will, we feel assured, concur with us that this high character must on no consideration be compromised.—EDITORS.

paper with a rag, so, as to color it uniformly, more or less, according to the nature of the stone on which the inscriptions are cut ; if the surface is very smooth, the thinner the color the better, and vice versâ. It is best to keep a few sheets ready prepared of different shades of color on hand. These should be rolled on a light roller with a sheet of blotting or unsized paper between each, to absorb all superfluous greasy matter. Paper prepared with ochre mixed in water answers, but is apt to obliterate.

To take off impressions, first of all damp your plain paper slightly, and with little wafers of bees wax fasten it tightly over the inscription ; next cut a slip of prepared (colored) paper the width of two or three lines, according to the size of the letters, and when very large, of one line only ; apply the colored face to the white paper, and with a muller made of hard wood, rub the paper longitudinally and vertically until all the letters appear as clear they will, moving the colored paper onwards as the impression comes off : the color becomes transferred by this means into all the raised surface of the inscribed stone, leaving the cavities or letters white. This will be more or less perfect according to the nature of the stone, the smoothest giving the best impressions.

It is better in large inscriptions to cut your white paper also in strips and to number the lines as you take them off to enable you to adjust them afterwards.

When the impression has been thus taken, it should be most carefully compared, letter for letter, with the original, and indistinct letters should be supplied in pencil ; it will be found that rough surfaces require this invariably, indeed some inscriptions cannot be fairly imprinted with the color ; however, it is best to make the most of it and make the letters distinct with a pencil as suggested.

For correcting, the light at sunrise and sunset, also strong moon light, or by torch at night is best ; letters that are invisible at other times become distinct then ; the surface should be looked at obliquely, and indeed from every point till the eye catches the form of the letters ; of course this will be easier to one accustomed to the different alphabets and who may be able to read and comprehend them.

In searching for inscriptions parties should practically, never "leave a stone unturned," for they often occur in the most unlikely localities, usually above doors or within their jaumbs, or in some dark corner

within, and above all things, never believe it when the inhabitants say there are none, but search yourself for them.

I would lay much stress upon one point calculated to aid parties in their search for antiquities, it is this. Never neglect visiting every clump of, or single Peepul or Banyan trees, and particularly if on a high mound or by water, for a practice exists all over India of collecting fragments of stone of all kinds, sculptured or inscribed under such trees.

Whenever a high mound is seen in a flat part of country, depend upon it, it is the site of an ancient city. Those who have travelled in the Punjab, and in the Cis-Sutledge territory, will not have failed to remark this. Witness all the places the names of which end in "put" and "hana," Paneeput, Son-put, Cong-put, Sam-hana, Pud-hana, &c. &c. but there are very many mounds in the other and distinct names such as Kupoor, Mumdote, Kunnoje, Kurra, Manicpoor.

It would be very useful if in the different revenue surveys attention were paid to those mounds or sites of old towns, and that they should be entered in the maps, the names carefully recorded in the dialect and written character of the country.

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*Hints on the Easiest Method of taking and preparing Drawings for  
Lithograph, by the same.*

Several years ago I proposed contributing (monthly) specimens of sculpture, but various impediments have been opposed to the fulfilment of the promise; as I think that the subject is still worthy of consideration, I would suggest your inviting contributions, to facilitate which, both as to execution and economy, I would offer the following hints.

In the first place, the more simple the drawing the more correct the idea conveyed of the object to be represented and the less the trouble of execution, both for the draftsman and the copyist, whose charges must be regulated by the extent of work; a plain outline drawing is sufficient, and should be reduced to the size required for the Journal.

There is a method by which much accuracy is attained and trouble and expense spared.

The drawing should be first carefully reduced to the size required upon stiff paper, and the outlines boldly done with Indian ink; this

should be again traced on that description of China paper commonly used in Calcutta for lithographic purposes, with a medium pencil, or better still in lake with a pen, and be then carefully rolled and packed to prevent its being in the slightest degree crumpled or soiled; equal care must be observed whilst drawing, that neither greasy particles nor perspiration touch the paper; such drawings can be easily lithographed even by indifferent native draftsmen, for all that remains to be done, is, to apply the yellow transfer mixture over the pencil drawing, and when ready for use the whole has merely to be drawn over (traced) with the pen or brush and lithographic ink. Many of the plates of my *Illustrations of Indian Architecture* were prepared in this manner. The outlines should be exactly of the depths required for the shading. This plan is applicable to representations of any objects in outline and for facsimiles of inscriptions in particular, and will be found much safer than the actual drawings, with the chemical ink on the transfer paper, which are always liable to injury and never certain of success. Drawing the outline in pale red ink or lake is better than pencil, as the latter being dark, is apt to be overlooked in the tracing.

For drawing sculptures, &c. &c. a frame divided off into three inch squares, with thick white cotton twine well stiffened; the centre perpendicular and horizontal thread being red for easier guidance, is strongly recommended; the paper must be divided also into squares. The frame is placed at a convenient distance from the object, when all that is requisite is to keep the same position whilst drawing, and this is easily done by marking a dot on the object, cutting the crossing of the red threads; great accuracy and facility is attained by this method.

It should be borne in mind that clear, bold outlines are far more valuable than indistinct sketches, however beautifully colored, which are indeed of little use.



*Notice of TREMENEERITE, a new carbonaceous mineral, by HENRY PIDDINGTON, Curator Museum of Economic Geology.*

This substance was sent to the Museum from Tenasserim by Capt. Tremeneere, B. E. as Black Wad, but it contains no trace of Manganese.

It is, when fresh, in masses of a scaly structure and of a deep black colour, with a highly metallic lustre, much resembling coarsely foliated graphite; after a few months it partly falls to powder, or rather into scaly flakes, evidently from the decomposition of pyrites, of which it contains about three per cent. It powders easily, but the powder is always scaly, soiling, greasy, and glittering, like graphite. If the pulverised part be washed and ground, the tougher metallic looking scales remain as a black micaceous residuum, and it is only after long rubbing and washing that they also are pulverised, showing great toughness in the compacter and larger scales of the mineral. It soils much but is too soft to mark with, nor can any very determined streak be made; what is so is of a deep black. When heated a little sulphur sublimes; the mass burns but very slowly indeed, reddening only at first and for a long time like some varieties of graphite, and requiring a good supply of air to the crucible and constant stirring to effect its combustion.

With patient attention the whole is burnt, with the exception of a small residuum of a very light, and bright fawn-coloured powder, which is a mixture of oxide of iron and silix.

Its composition is found to be in 100 parts,

Carbon, . . . . .	85.70
Water and Sulphur, . . . . .	4.00
Peroxide Iron, . . . . .	2.50
Earth, chiefly Silica, . . . . .	7.50
	<hr/>
	99.70
Water and loss, . . . . .	30
	<hr/>
	100.00

This mineral then differs from the anthracites in its high lustre, scaly structure, and ready pulverisation, by which it approaches the graphites; as well as by its iron and very slow combustion; but then from these it differs by its streak, and high combustibility with nitre; for, like coal and the anthracites, when projected upon melted nitre it deflagrates, heating the crucible instantly to redness, while the graphites not only boil but heat the crucible also, and seem but partly and very slowly to part with their carbon till a much higher heat is given.

This distinction I have not yet found noticed in any chemical or mineralogical work, but it seems to me to be no bad test by which to

separate the graphites from the anthracites; namely, that with nitre, at a heat a little above its melting point only, the former melt and are consumed, while the latter deflagrate and almost explode. My trials were made with graphite from Borrowdale, from Cochin and from the Himalaya, all of which, as above stated, diffused themselves over the nitre and were consumed gradually, while Newcastle Coal, American Anthracite and our present mineral deflagrate smartly.

It is usually taken, on the authority of Berzelius, founded on Karsten's researches, that the iron in graphite is a mere fortuitous mixture; but Beudant acutely says\* alluding to this, that "when the iron is wanting we have no graphite, and when this substance is found in our furnaces, the proportions are sensibly the same," i. e. about 8 per cent. which he seems to think may be the true proportion. I do not advert to Kirwan's experiments, which were merely relating to coal and not to coal and graphite in comparison with each other.

In Professor Vanuxem's experiments (Phil. Mag. for September 1845) the quantity of manganese and iron in anthracites is stated to be from 0.2 to 7.10 per cent. and the water from 4.90 to 6.70. In the graphites he found from 1.40 to 3.60 per cent. of oxide of iron and manganese in the pure, and 20.00 per cent. in the impure kinds; and of water from 0.60 to 1.23 in the pure and 5.33 per cent. in the impure kinds.

It may then be a mooted point to which of these two classes of the anthracinea† our mineral belongs, but as I have found nothing of the kind described before I have given it a distinguishing name, to be adopted or rejected, as better authorities shall determine.



*On a new kind of Coal, being VOLCANIC COAL, from Arracan, by  
the same*

This coal was sent us from Kyook Phyoo by Major Williams, as one of the products of the eruption of the Mud Volcano at that station, described in his letter in the Proceedings for November, 1846.

It is in two lumps, which look externally like rolled boulders of Coal, and feel greasy on the outside like graphite.

\* Beudant *Minerologie*, p. 404.

† I use here Mr. Dana's term for this order.

It is highly sectile on the outside, being easily cut or pared without breaking, like soft plumbago. Internally it is a little more brittle, but still very sectile. Its smell when cut is very peculiar, being highly sooty, like the smell of a foul chimney in which a fire has not being made for a long time. When breathed upon the smell is very earthy and "bitter."

The internal structure is in one direction highly foliated, or scaly, and somewhat curved, with a semi-metallic lustre; at right angles to this it is granular and glimmering; the fracture partakes of both. In its general appearance it reminds us much of coal altered by dikes cutting through it. The streak is highly metallic, and the mineral very soft. It writes well and of a brown colour.

Its specific Gravity is 1.28.

In an impure part of the specimen there are minute white veins, which are Carbonate of Lime. It burns and swells up like Newcastle Coal, but its smell when burning is more that of Cannel Coal. This is doubtless from the absence of sulphur of which there are no traces. It coaks perfectly; swelling however to a mass four times the original size, while the best Newcastle only increases to about double its size.

Its composition is in 100 parts,

Water, . . . . .	1.00
Carbon, . . . . .	63.60
Gaseous matter, . . . . .	18.90
Earthy residuum Iron and Silex, . . . . .	16.50
	<hr/>
	100.00

It gives of Coke per cent. by an independent experiment on a solid lump, . . . . . 75.75

Newcastle Coal from the Percy High main seam gives per cent. of Coke, . . . . . 78.8

The mean of Cokes from English Coal by Dr.

Ure (Dicty. Chemistry) is, . . . . . 65.0

We have here the fact that there must exist a seam or deposit of very fine Coal not far from the site of the Mud Volcanoes, and though at present all we know of the Arraeon Coal is unpromising on account of the thinness of the seams, yet as nothing but surface examinations have yet taken place, and these not by professional miners, we may hope for

better results when due research shall have been made. The alteration of the coal by the steam of the Mud Volcano cannot be great, since it preserves so large proportion of its bituminous matter. And coal like this if attainable, and in quantity, would be very valuable.

The per centage of ash in English coal is I see\* only 7 or 8, at the highest, and more often far less. The mean of 13 specimens is 2.8 only, but one would suppose some error here.

Since this paper was written I have received from Major Williams a further supply of specimens collected at the Volcano, of which he says that there is no doubt about the coal's being the produce of the Volcano, and that the hardest specimens sent are those from a former eruption. Some of these are exactly our Volcanic coal, others approach more to Jet, and some which are intersected with Carbonate of Lime make very pretty specimens when polished.



*Hints to Students of Arabic ; extracted from a letter by Col. LOCKETT.*

I have to apologise to you for not writing sooner, but I have been so much engaged with the public examinations in the College that I have really not had time.

If C. has made no progress in Arabic, he should commence with Bayley's Tables, which he will master in a week. He may then read attentively the Murt Amil and Shurhao Murt Amil, two works on Arabic Syntax, which will give him enough of grammar. I have translated both these works into English, and it will be of use to him, as there are many easy Arabic stories in it with translations. He can get a copy from the College Library on application. He must then begin to read some easy Arabic work to give him words and a knowledge of construction. The Arabian Nights Entertainment, and the Ikhwan-oos-suffa, are the easiest books and best adapted for that purpose. He may read about 200 pages in each. Then he may commence on Mahommedan Law in Arabic.

There are three text books of the Mahommedan Law, all containing texts or simple rules on the same heads, but expressed in different words, supposed by the writers to be more explicit or comprehensive. The most ancient and authentic is that of *Kudooree*. The *Wakayah*

\* Prinsep's Table, Jour. : Vol. VII. p. 197.

and *Kunz-ood-dukaek* are the others ; but they are but copies of the former with the change of style or phraseology I have mentioned. Then comes the *Shurhus* or Commentaries on these. The *Hedayah* is a *Shurhu* of the *Kudooree*, with an amplified text, but the whole of *Kudoorees* text verbatim et literatim is found in the *Hedayah*. This the *Kazees* and *Mooftees* and *Moulavees* in Calcutta were not till lately acquainted with. Captain Galloway, who has translated, but not prepared for publication the *Kudooree*, found part and explained it to them.

The *Hedayah* is an invaluable work, but then it is full of disquisition and subtilty of argument which would not be much to the taste of a beginner, and this has given rise to fifty different *Hasheeh* or annotations on the *Hedayah*. There is a commentary on the *Kudooree*, the *Suroj-ool Wuhaaj* سراج الوهاج, but that is also a voluminous work. The *Shurh Wukayah*, a common work, is a good one. There are indeed several *Shurhus* on that text, all easy and good, by *Abool Mukarum Birgundee*, &c. and the *Jaemeeea-ooz-Rumooz*. Of the *Kunz-ood Dukaek*, the *Aeenee* is a good and easy *shurh* and a good book for a beginner, as well as the three last mentioned. Then there are the *Futawahs*, or collections of supposed cases and the opinions of the lawyers on them. These puzzle a beginner because he seldom finds a decided preference expressed for any opinion ; but this wears off by a little acquaintance with the books and the celebrity of the lawyers who have expressed the conflicting opinions, and the increasing strength of the reader's own judgment ; and if after all he find the opinions heavily balanced, he knows he may then adopt whichever his own mature judgment may think most suitable to the equity of the case. This is supposing him to be a Judge and that he had to decide a case in real life. The style however, of those *Futawahs* is quite simple, as well indeed as of all the Law Books, like that of books of science in all languages. Technical phrases are to be learnt of course. In short, the dryness of the subject is the only difficulty a student of Mahommedan law has to fear, but the *HAJEE* will encounter the Desert. Let there be a motive and the task will be overcome. C. should read *Harrington's* chapter on Mahommedan Law in the 1st volume of the *Analysis*, and provide himself with *Hamilton's Hedayah*.

PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
MARCH, 1847.

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The usual monthly meeting of the Asiatic Society was held on Wednesday evening, the 10th March. The Lord Bishop in the chair.

The minutes of the preceding meeting having been read,

Major Marshall stated that in the financial report lately submitted, no notice was taken of the debt of £150 incurred by the Society to the Hon'ble the Court of Directors in 1840, for the passage to this country of Mr. Blyth, the Curator of the Zoological Museum.

Dr. O'Shaughnessy, as one of the Secretaries, observed that he was not aware of the existence of this debt, but due enquiry should be made, and the result reported at the next meeting.

The proceedings of the February meeting were then unanimously confirmed.

The accounts of receipts and expenditure for the preceding month, with cash vouchers were laid on the table, for perusal of members during the ensuing month.

The following gentlemen were then balloted for and duly elected members of the Society.

H. Thornhill, Esq. C. S., proposed by Mr. Bushby, seconded by Lieut.-Col. Forbes.

J. Newmarch, Esq., proposed by Mr. S. G. T. Heatly, seconded by Dr. O'Shaughnessy.

Lieut. Douglas, Artillery, proposed by Capt. Broome, seconded by Dr. O'Shaughnessy.

Baboo Debendernath Tagore, proposed by Dr. O'Shaughnessy, seconded by Mr. Laidlay.

E. Linstedt, Esq., proposed by Mr. Blyth, seconded by Mr. Laidlay.

Baboo Dwarkanauth Bose, M.R.C.S.E., proposed by Dr. D. Stewart-seconded by Mr. Blyth.

Rev. A. Sandberg, Benares, proposed by the Rev. J. Long, seconded by Mr. J. Ward.

Rev. William Keane, M. A., Emmanuel College, Cambridge, proposed by the Lord Bishop, seconded by Dr. O'Shaughnessy.

J. Kerr, Esq., Hindu College, proposed by Dr. O'Shaughnessy, seconded by Lieut.-Col. Forbes.

The following gentlemen were proposed as candidates for election :—

The Rev. S. Slater, proposed by Rev. J. Long, seconded by Rev. J. H. Pratt.

Count Lackersteen, proposed by Mr. Blyth, seconded by Mr. Laidlay.

D. Money, Esq. C. S., proposed by Dr. O'Shaughnessy, seconded by Mr. Welby Jackson.

Lieut. Staples, Bengal Artillery, proposed by Mr. Laidlay, seconded by Dr. O'Shaughnessy.

The subjoined letter from Mr. Carre Tucker should have appeared among the proceedings last month. The box of shells and bones to which it refers was exhibited at the January meeting.

*To the Secretary of the Asiatic Society, Calcutta.*

SIR,—I did myself the pleasure of sending you a few days ago, a box of bones, found at a place called Umhut, on the Koâna Nuddee, which flows from Oudh, and joins the Gogra at Gopalpore. A bridge is building near the spot; and the convicts in digging for Kunkur, came upon what would appear to be a pit filled with shells, deers' horns, and all sorts of bones. It appears to be about 12 or 15 feet deep. The size is not yet known; but many thousand maunds of shells have already been dug out for lime. The termination of the bed of shells, where we have come upon it, is perpendicular, like the side of a pit. The site is some jungle close to the high bank of the Nuddee.

No one in the neighbourhood can make even a tolerable guess how this immense mass of shells and bones could have come where we find them. There is no village any where near. Some of the people think that some great man in former days must have intended to build a bridge where mine is now building, and have collected the shells for lime. Others, that a mahajun may have collected them for exportation; but neither of these hypotheses will account for the large quantity of horns and bones found amongst the shells. Perhaps the most general belief is, that an Asur lived there, and that he was in the habit of chucking into this pit the bones of the men and animals he devoured, as also the shells of the fish he was forced to eat when he could get nothing better to devour!!!

I have little doubt the collection is artificial—but I am quite at a loss to imagine how, and by whom, it could have been made.

As a matter of curiosity, I have thought it right to send you some of the shells, bones and horns, with the above brief account. The discovery has been a fortunate one for me, in supplying me with an enormous quantity of the finest lime for my numerous bridges.

I have the honour to be, Sir,

Your obedient Servant,

H. CARRE TUCKER.

*Magistrate and Collector.*

*Gornuckpore, 26th January, 1847.*

Letters were read—

From the Secretary to the Superintendent of Marine, forwarding Meteorological Registers kept at Kyook Phyoo.

From the Society of Antiquarians of London, presenting the 31st vol. of the *Archæologia*.

From Captain Kittoe, respecting his late investigations of the Buddhist remains in the Gyah district, and announcing despatch of several sculptures and inscriptions.

*To the Secretaries of the Asiatic Society.*

DEAR GENTLEMEN,—I had intended being present at this meeting but am prevented, and as I had reserved my different papers as well as collection of Behar Inscriptions for the same occasion, they must also stand over for the next meeting.

The papers I have prepared are as follows:—

1. Notice of the Ruins and Temple of Oomga near Sherghatti, and inscriptions &c.

2. Notice of the Viharas and Chaityas of Behar.

3. Notice of the Buddhist sculptures at Bôdh Gyah.

4. Notice of the hills, caves and inscriptions, &c. of Barabar near Gyah.

With illustrations on a scale suited to the Journal, and ready for lithographing according to the plan suggested in a late letter to you on that subject.

I have the pleasure to state that I have despatched several cart loads of sculptures, &c. for our Museum, as well as a few Geological specimens.

I beg to invite the attention of the Geological branch or department to the subject of the mineral productions of the country south of Hazaribaugh, which I have lately passed through. The valley 10 miles south of the Dorunda road, the streams of which run westward exhibits the sandstone of the coal formation to a great extent; it was in this valley that coal was found six or seven years back. Above the rock and on the hills which separate it from the valley of the Deo Mad or Damooda, is a vast deposit of iron ore which supplies the province of Behar—

Gneiss? make its appearance on the higher land and the sandstone again appears on either side of the Damooda valley; no doubt coal would be found in abundance in all these tracts.

Sandstone of a less decided kind is found in the valley of the Barrakur, close to the great trunk road, where I quarried a large quantity for the public works, still I am of opinion that it belongs to the coal formation.

I have picked up rolled fragments of coal in the Mohana, which crosses the trunk road beyond Dunwa. I intended to have traced this coal, but public duties have ever prevented me. I believe coal would be found in the upper valleys of all the large rivers flowing from the Vindhia hills.

Having seen the Burdwan fields and those further west, which follow both the Barrakur and Damooda, as well as those just mentioned, I should lay great stress on the subject of the Orissa coal fields. I therefore now beg to assert that I feel confident that an extensive field exists in the valley of the Mahanuddee close to Cuttack, (below the surface,) and that the field I first brought to notice in 1837, called the Talcher mines, is fully as extensive as at first supposed by me. I can now safely say that the coal could be worked close to the river side (Brahman's) as low down nearly as Kurugpursad, below which the river is navigable the greater part of the year.

I would suggest that the valley of the Byturnee be also examined, though I consider the Brahmán's coals to be the most valuable on account of the immense supply of iron ore of excellent quality found in the same locality. Now that we are about to have rail roads with the consequent demand for iron, the subject of iron and coal fields becomes of first importance.

I must beg indulgence for this rambling letter; the will must be taken for the deed. I am anxious to convey as much intelligence even of the slightest importance as chance throws in my way, with a view to stimulate others to do the same; perchance I may convey some useful hint among the many.

M. KITTOE.

The marked thanks of the Society were directed to be conveyed to Captain Kittoe for this communication.

From Babu Debendernath Tagore, recommending that pundits from Benares should be employed in the publication of the Vedas.

*Minute on the intended publication of the Vedas by the Asiatic Society.*

- \*1 Chaturtha Arunya Gana.
- 2 Chandoggya Bráhmmana.
- 3 Agni Bráhmmana.
- 4 Atharva Veda Bráhmmana.
- 5 Atharva Veda Sanghita.
- 6 Anoostrata.
- 7 Atharva Prattangirá Kulpa.
- 8 Atharva Rahásya.
- 9 Atharva Sanghita.
- 10 Arunya.
- 11 Arunyakopunishad.
- 12 Arshya Bráhmmana.

Though there are, as will be seen on perusing the list of Vedaic manuscripts specified in the margin\* sufficient materials, in the library of the Society, wherewith to commence the intended publications, yet I am of opinion that, for the reasons mentioned below, without the assistance of Vedaic Pundits who have studied the Vedas regularly as scho-

- 13 Rig Veda.
- 14 Rig Veda Prothamástaka.
- 15 Rig Veda Bráhmmana Punchika.
- 16 Rig Veda Bráhmmanástaka Punchika.
- 17 Rig Veda Soonta Sorton.
- 18 Kapistal Sunghita.
- 19 Gopatakha Bráhmmana Purvárdha.
- 20 Gopatakha Bráhmmana Prapatakha.
- 21 Ditiya Anoostatra.
- 22 Ditiya Arunya Gana.
- 23 Prathama Veda Gana.
- 24 Maddhaudina Sutpatha Bráhmmana Syasáshtaka Prapunchika.
- 25 Maitrayani Sákha.
- 26 Moitra Baruna Sákha.
- 27 Yajur Veda Maddhundina Sákha.
- 28 Yajur Veda Satpatha Bráhmmana.
- 29 Vasa Bráhmmana.
- 30 Sarbingsa Bráhmmana.
- 31 Saptadasa Prapatakha.
- 32 Sám Vedhána Bráhmmana.
- 33 Sám Veda Uhagana.
- 34 Sám Veda Chhandasa.
- 35 Sám Veda Trayabingsati Prapatakha.
- 36 Sám Veda Panchabingsati Prapatakha.
- 37 Gopátakha Bráhmmana of the Atharva Veda.

that Vedaic Pundits should be procured from Benares, if obtainable there, and employed at fixed salaries, in order to assist in the intended publication.

lars, this very important and valuable undertaking of the Society cannot be executed to our entire satisfaction. Reason

1st, That frequent errors in copies are the invariable concomitants of manuscript preparation of works. Reason

2nd, That though a multitude of copies of the Vedas be procured for purposes of collation, yet the dialect in which they were written having in a great measure become obsolete and difficult to be understood even with the assistance of commentaries which are often no less obscure than the text, the collation cannot be properly made, as its effectual and satisfactory execution depends entirely upon a profound, critical, and scholastic acquaintance with that dialect itself.

I am therefore decidedly of opinion,

DEBENDERNATH TAGORE,

*Member of the Oriental Section.*

From Dr. E. Roer on the same subject.

I take the opportunity also to report my proceedings with regard to the Vedas. I would have sent in my report concerning them long before, had it not been my wish to furnish the Society with a correct statement of the collections of the Vedas in Calcutta, which I could not as yet render complete, not having examined the MSS. of the Sanscrit College, to which I could not obtain access, the Library of the College being closed until Monday next. The Vedaic collections of our Library are very defective, and from the accompanying letter of Debendernath Tagore, you will perceive, that he believes we cannot procure parts of the Vedas in Calcutta, an opinion, which is also held by Radhakant Deb. There is however, a *complete and sufficiently correct* MS. of the Sanhita of the Rig or first Vedas (the first two parts are now with me) in the Library of Bishop's College, which has been placed at my disposal, and I would propose to print this Sanhita, if we can obtain the commentary, together with the commentary; if not, without it. With this view I will without delay employ a pundit, who under my superintendence, is to make a transcript of the MS. in question. With regard to the difficulties attending such an edition, as alluded to in Debendernath's letter, I believe, they are

overrated. We should be able to do this here with almost the same success as in Europe, and I will take it upon me to bring this edition through the press, if the Society will avail themselves of my services. The language is antiquated only in a few grammatical forms, and there are some words out of use at present; but the language at the same time is simple; (it reminds one of Homer) and very far from the elaborative mode of grammatical structure, used at a more recent period. The suggestion, however, of employing a pundit, who has studied the Vedas at Benares, is a good one, as this will much facilitate the work.

E. ROER.

Both these letters were referred through the Committee of Papers to the Oriental Section.

From Colonel Sleeman, forwarding a Grammar and Vocabulary of the Goond language.

From Lieutenant Briggs, Seonce, describing an extraordinary rent effected in a hill in that district in the month of May last, apparently by volcanic agency.

*To the Secretary of the Asiatic Society, Calcutta.*

SIR,—In hopes that the following account of an earthquake, or eruption, which occurred in the month of May last, near to the ancient fortress of Mundelah, on the banks of the Nerbuddah, may be worthy of perusal, I have the pleasure of sending you a description (although a very imperfect one) of what appeared to me worthy of remark, after visiting the scene of the phenomenon.

About the end of May last, my friend Captain Skene, the Deputy Commissioner of the district, received a petition from the Thuseeldar of Mundelah, stating that during the night of the 27th May, the inhabitants of the villages situated at the foot of the mountain called “Dhumah Phai” had been thrown into a state of great alarm, by a tremendous noise and rumbling in the hill above them; which lasted the greater part of the night, and that in the morning they found that the hill “had opened” and “that trees of immense stature had been engulfed.” We were by this account much inclined to believe that all this had been merely the effect of a landslip, but circumstances putting it in our power to visit the hill—we did so—and found our previously formed idea quite erroneous.

The Dhumah Phai, (which literally translated *should* mean the smoky mountain) is about 500 feet above the level of the plain—rather steep in ascent and covered with a thin stratum of earth, with numerous boulders of rocks projecting beyond the inclined plane of the hillside. Although we made every enquiry with the object of discovering whether any previous volcanic eruption had been the cause of the hill receiving the name of “Dhumah” we could not find that such had been the case, no tradition of the sort being known among the natives; and

some therefore inclined to believe, that as the Goonds are in the habit of giving every eminence a name, this has by chance received the term above mentioned.

On examining the hill we found that the eruption extends from the bottom to about three parts up. The effect of the shock has been to tear out, and push to either side, enormous masses of rock; (many of which have been split by the convulsion) and turn over trees of large size—conveying to the eye, the exact appearance as if a long mine had been so laid, that when exploded it had completely cleared a road-way of about 30 feet in breadth, and five or six in depth, leaving merely the bare surface of the rock composing the hill itself, exposed in many places; or, as if a gigantic plough had been passed down the mountain oversetting, tearing up, and pushing to either side, every obstacle that opposed it.—Rocks of from 20 to 30 feet in circumference, are seen split in half and removed to either side the line of eruption, not by any means exhibiting a tendency towards the foot of the hill, but appearing as if torn from their original position, and forced to the right and left—showing that the direction of the shock was from the interior, and not the upper part of the hill, as would have been the effect of a landslip. Indeed the position in which trees of large size are found, many of them with their roots uppermost, and branches entirely buried in the debris, clearly show that their displacement was occasioned by a more than natural cause. As many most respectable natives testify to the truth of the terrific noises that were heard during the night of the 27th May, we can have no reason to doubt this fact.

However with the most careful search I could find nothing of a volcanic nature apparently of a more recent date, than such specimens as are found all over this part of Central India. And now Sir, without intruding any idea of my own, as to the nature of the convulsion, let me beg your serious (?) consideration of the following conclusion at which the learned Thuseeldar has arrived: viz. “That the earth having become much heated, by the foregoing hot weather, had got fever; but having here opened, the bad matter had been discharged,” and there was every likelihood of her doing well again!!

Your's very truly,

D. BRIGGS, *Lieut.*

*Supt. Jubblepore and Kamptee Road.*

*Seonee, 25th February, 1847.*

Papers were presented—

By Mr. Blyth on the species of Wild Sheep.

By Dr. W. B. O'Shaughnessy on explosive cotton and the results of the Artillery trials at Dum-Dum.

By Captain Madden, Bengal Artillery—Visit to the Pindree Glacier.

Reports were submitted by the Curators in the Geological and Zoological Departments.

*Report of the Curator, Museum of Economic Geology, December to February.*

I have received, through the Secretary to the Superintendent of Marine, the following very curious account of a phenomenon seen at sea. It were to be wished that we had many more such observers as the intelligent young officer who has given us this interesting note, for there is no doubt that these appearances are either indications of some extensive action going on, volcanic or electric, or of remarkable abundance of luminous animaleulæ, and of which, if any of the water has been preserved, we may obtain some indices by chemical examination. I have written to Mr. Pearson and to Captain Biden, Master Attendant of Madras, requesting both to use their best endeavours to obtain for us specimens of the water, for I should suppose it impossible that some has not been preserved, since the ship must have carried a Surgeon who certainly should have done this.

No. 2310.

*To H. PIDDINGTON, Esq.*

SIR,—I have the honour by direction of the Offg. Superintendent of Marine, to forward for your information, the accompanying copy of a letter from Mr. George F. Pearson, Cadet of Infantry, Madras Presidency, dated the 27th ultimo, and of my reply thereto dated yesterday.

I have the honour to be, Sir,

Your most obedient Servant,

JAS. SUTHERLAND,

*Fort William,**Secretary.**Marine Supdt.'s Office, 11th June, 1846.**Ship Hashemy, May 21st, 1846.*

MY DEAR SIR,—In Lat.  $37^{\circ} 42'$  South, Long.  $28^{\circ} 48'$  East, being on board the barque *Hashemy* bound from London to Madras, we fell in with the following phenomenon in the sea, which perhaps may prove of some interest to you.

On the 17th of April in the above Lat. and Long. about 9 hrs. 45 min. (civil time) P. M. the surface of the sea became covered with what appeared to be a thick foam of a sparkling white appearance. This continued, being at intervals more or less bright and sparkling till near midnight. It seemed to exist in large patches over the sea, and when the appearance was at its height the passage of the vessel through the water could be compared to nothing else than if it were being borne through beds of driven snow.

During the phenomenon the Barometer was depressed  $\frac{2}{10}$  of an inch, and a thick black cloud hung over the vessel, which circumstances will I think indicate the presence of a large body of electricity in the atmosphere. I should likewise mention that the wind, which for two days had been very light, indeed at times almost calm, three quarters of an hour before the first appearance, shifted from N. N. E. into N. W. from which quarter it blew a steady breeze till morning, when it died away into a light air.

On the afternoon of the same day several persons had perceived and actually talked about a dry kind of sulphureous smell in the atmosphere, wondering from whence it could proceed; was it not possible then that as the appearance was very much that of a gaseous vapour rising through the water, it might have been the effect of some submarine Volcano, the foaming appearance being caused by the fumes of sulphur rising through the water?

I had a bucket full of the water drawn up, some of which I put in a tumbler and tasted. It had a very bright sparkling appearance as of the purest spring water, but I could not discern any difference in its taste from common sea water.

In looking over Horsburgh's work I perceive that vessels have occasionally fallen in with a similar appearance, though if I could judge from his account, on a smaller scale. Surely it must have been something of this sort which vessels have mistaken for shoal water even when they could obtain no soundings. Hence the Telemachus Shoal and many others whose existence appears very doubtful.

Knowing the interest the Marine Board take in circumstances of this kind, I trust the extraordinary and interesting nature of this phenomenon may be sufficient apology for the liberty one, who is about to enter another profession of a very different nature, now takes in addressing you.

I remain, &c.,

{Signed}

GEO. F. PEARSON,

*Cadet of Infantry,*

*Madras Presidency.*

*Palaveram, May 27th, 1846.*

Major D. Williams of Kyouk Phyou has sent to us a small box of the minerals and earths ejected by the recent eruption of the Mud Volcano near the station. Upon examination I find them to consist exactly of the same kind as before. (*Proceedings of October 1843*), namely, grey indurated mud and shale, with black shaley masses, carbonate of lime fibrous and semi-crystallised, and Iron Pyrites.

Our active contributor Dr. Spilsbury, sends us from Bundlecund

12 Specimens Trap Rocks of various kinds.

1 Of the Copper ore from Sahghur reported on before.

20 Specimens of fossils of various kinds.

5 Specimens of the fine coal from Laneter Ghat.

We have received from our able contributor Lieut. Sherwill, of the Shahabad Revenue Survey, his splendid map of that district, which fully equals the former one, and he has added to it also some notes which, together with his magnificent collection of specimens (noticed in report of November 1845, when the present map and notes were promised), are like the former on Zillah Behar, unequalled by any contribution yet sent to the Society, as the fruit of the labours of a public officer in a most active department, yet finding time to combine with them, and to add so highly to their value, such researches. In reference to these maps I have to submit for the orders of the Secretary and the Society the following letters.

No. 61.

*To H. PIDDINGTON, Esq.*

SIR,—As I am desirous of having the Geological maps of Zillah Behar, and the southern portion of Zillah Shahabad lithographed in the Government Press, and as the original of these records are in your possession, I shall feel obliged by your making them over to me, at your earliest convenience, for the purpose specified above.

2nd. One lithographic impression of each map will be duly made over to you when received from the press.

I have the honour to be, Sir,

Your most obedient Servant,

H. L. THUILLIER,

*Offy. Deputy Surveyor General.*

*Supt. of Revenue Survey's Office,*

*Calcutta, the 6th March, 1847.*

*Capt. H. L. THUILLIER, Offy. Deputy Surveyor General.*

SIR,—In reply to your letter of this date, 6th, I beg to say that the maps in question are presented to the Asiatic Society for the Museum of Economic Geology.

2. Major Wroughton took a copy of the Geological map of Zillah Behar, which is no doubt in your office.

3. That of Zillah Shahabad will be submitted to the Society at its meeting on the 10th, when I will not fail to take the orders of the Secretary and the Society concerning it. There can be no objection, but on the contrary great advantage in having these valuable labours of Captain Sherwill's made as public as possible, but the originals I apprehend must eventually remain with us.

I have the honour to be, Sir,

Your obedient Servant,

(Signed)

H. PIDDINGTON,

*Museum, 8th March, 1847.*

*Cur. Mus. Eco. Geology.*

No. 63.

From Lieut. H. L. THULLIER, *Offg. Deputy Surveyor General,*  
To H. PIDDINGTON, *Esq. Curator Museum Economic Geology.*

SIR,—I have the honour to acknowledge the receipt of your letter, dated 8th inst. and with reference to the 2nd Paragraph, beg to state, that a Copy of the Geological Map of Zillah Behar is in my office, but, as it is necessary whenever any map is to be lithographed, to take the exact impression from the *original* if possible, I trust the Society will not object to my being supplied with both the maps, executed by Captain Sherwill, for the purpose above specified.

2. On the Maps being lithographed, the Originals shall be returned, together with one Colored Impression of each of the Districts.

I have the honour to be, Sir,

Your most obedient Servant,

H. L. THULLIER,

*Supt. Revenue Survey's Office,*  
*Calcutta, 9th March, 1847.*

*Offg. Deputy Surveyor General.*

I have put into the form of a paper for the Journal the examination of a new Carbonaceous Mineral, which I have named *Tremenheerite*. It is a variety of the Anthracinæ, but neither Anthracite nor Plumbago, and is thus well entitled to a separate name.

(Signed)

H. PIDDINGTON,  
*Cur. Mus. Eco. Geology.*

*Report of the Curator, Museum of Zoology.*

My Report for this evening's meeting is more brief than usual; and so much time has been expended during the past month in setting up the skin of the Giraffe, that I have but a small collection of other mounted specimens to exhibit. The donations for the museum are as follow:—

1. G. H. Bushby, Esq., Secretary to Government. A living specimen of a Marmot (*Arctomys bobac*, Pallas, v. *tibetanus*, Hodgson), from Sikim. This little animal is not more than a third grown, is quite tame, and seems likely to bear the difference of climate, as it does not appear to be incommoded by the heat.

2. G. T. Lushington, Esq., of Almorah. Two skins of the Tibetan Fox (*Vulpes nipalensis*, as erroneously designated by Mr. Gray).

3. D. C. Money, Esq. A specimen of a Nilotic Crocodile (*Crocodylus vulgaris*), taken near Thebes, and quite distinct from *Cr. palustris*, Lesson, of the Ganges, &c., which is regarded as a mere variety of the same by MM. Dumeril and Bibron. The length of this specimen is 10 feet; and we have stuffed examples of *Cr. palustris* and *Cr. biporcatus*, of the same length, from the neighbourhood of Calcutta.

Also a mummied Ibis, the skeleton of which will perhaps bear setting up.

4. R. Templeton, Esq., M. D., of Colombo. A further collection of Cinghalese

birds, comprising a new *Tephrodornis*, and a *Phyllornis* which I cannot satisfactorily determine. *Ph. Jerdoni* is common on the island, and I lately observed this species in considerable abundance in the Midnapore jungles; as also *Pynonotus flavirictus*, which is another common inhabitant of Ceylon; but neither of them inhabits the valley of the Ganges.\* In this collection, I may notice also *Parus cinereus*, Vieillot (v. *atriceps*, Horsf.), identical with specimens from Java, the Himalaya, and from central and southern India; and *Bucco rubricapillus*, Gmelin, distinct from the common *B. indicus*, and more nearly allied to the Malabar species referred to *B. barbicutus*, Cuv., in XV, 13, but which I now think distinct, and have termed *B. malabaricus*.

5. R. W. G. Frith, Esq. A huge specimen of the variety of the common domestic fowl, known as *Gallus giganteus*; a specific name which, I think, is inadmissible.

Also the skull of a Dolphin taken on the voyage out to India, which is all that I have been able to learn of its history. It agrees with the figure of *Delphinus delphis*, Linn., in the 'Ossemens Fossiles,' except that there is no trace of lateral constriction towards the base of the upper maxilla, and the teeth exceed fifty on each side above (amounting to fifty-three on the right side), and may be put down as fifty on either side below; this exceeds the extreme number hitherto observed in *D. delphis* (verus), and in no other species of true *Delphinus* described by M. Fred. Cuvier, are the teeth nearly so numerous.†

6. C. S. Bonnevie, Esq., of Rungpore. A large collection of Darjeeling birds, from which I have been permitted to select any required for the museum, and the rest are to be forwarded to that of the Christiania University. Among those selected for our own collection may be mentioned *Emberiza pusilla*, *Tchitrea affinis*, *Muscicapula McGregoriae*, (Burton,—the female of which is *Leiothrix signata*, M'Cllelland and Horsfield, and *Niltava auricularis*, Hodgson), *M. sapphira*, fœm., *Ianthia flavolivacea* (p. 133, ante), *Pnoëpyga squamata*, *Tesia cyaniventer* (var. *auriceps*, Hodg., p. 137, ante), *T. castaneo-coronata*, *Culicipeta* (seu *Abrornis*) *poliogenys*, n. s., *Drymoica brevicaudata*, n. s., *Stachyris ruficeps*, n. s., *Ixulus occipitalis*, *Minta cinerica*, n. s., *Proparus chrysolis* (it should be *chrysopterus*,) m. and f., *Myzornis pyrrhoura*, *Erpornis zanthoteuca*, and *Certhia discolor*,—for the most part, particularly five specimens ‡ Also a collection of Darjeeling *Lepidoptera*, from which a few good specimens have been selected.

\* *Oriolus melanocephalus*, so very common in Bengal, seems to be equally so in Ceylon, though in most parts of the peninsula of India, I believe it is of rare occurrence. Many other species are equally common in Ceylon and Lower Bengal; and *Malacocercus terricolor* of Bengal, Assam, Nepal, and Orissa, is barely separable from *M. striatus*, Sw., of Ceylon. Indeed, coupling it with the fact of the deep coloring of *Acridothores tristis* in Ceylon (XV. 314), and that of the representative of *Corvus splendens* being there black, though differing in no other respect, I question whether we are justified in considering *M. terricolor* to be really different from *M. striatus*.

† In XV, 368, for "*Delphinorhynchus rostratus*, F. Cuv." read "*D. frontatus*, F. Cuv."

‡ The novelties in this collection have been described and are incorporated in the continuation of my paper on 'New and Little Known Species of Birds.'

7. Mr. E. Lindstedt. Several specimens of snakes
8. Mr. T. C. Madge. A specimen of the common hammer-headed Shark of the mouth of the river, *Sphyrna Blochii*, (Val.), v. *Zygæna laticeps*, Cantor.
9. Lieut. Blagrave, 26th N. I. A few bird skins from the Upper Provinces.
10. W. C. Hurry, Esq. A number of living beetles, which, at this season, are extremely destructive to various flowers, &c., in the gardens around Calcutta. The species is widely distributed over the country, and is nearly allied to the well known Turnip-fly of England (*Haltica nemorum*); but I have no immediate means of determining it more exactly.

Among the few stuffed specimens, will be observed a Monkey from the Cape de Verd Islands (*Cercopithecus sabæus*): some undescribed Squirrels, and with them the *S. tristriatus*, Waterhouse, which I found in the vicinity of Midnapore, and have since received from Ceylon; the voice of this little animal being extremely unlike that of *Sc. patmarum*, which I found inhabiting the same places. Also a new Jungle-fowl, from Ceylon, *Gallus lineatus*, nobis: and a fine Cobra, 9 feet long, the *Hamadryas hannah*, Cantor, *As. Res.* XIX, 87, (1836;) being also the *H. ophiophagus*, Cantor, *P. Z. S.* 1838, p. 72, and *Naia vittata* of Mr. Elliot, *Madr. Journ.* No. XXVI, 39, as identified by that naturalist with Dr. Cantor's reptile in the following No. of the same Journal, p. 390.

March 9th, 1847.

E. BLYTH.

*Books received during the month of Feb. for the meeting of the 10th March, 1847.*

PRESENTED.

Meteorological Register for January, 1847.—FROM THE SURVEYOR GENERAL'S OFFICE.

Ditto ditto, kept at Kyouk Phyoo during the month of January, 1847.—FROM THE SECRETARY TO THE SUPERINTENDANT OF MARINE.

The Horn Book of Storms, for the Indian and China seas, third Edition.—BY H. PIDDINGTON, ESQ.

Journal of the Royal Asiatic Society, No. XVII.—BY THE SOCIETY.

Archæologia; Vol 31.—BY THE SOCIETY OF ANTIQUARIES OF LONDON.

Historia Abbadidarum; Præmissis Scriptorum Arabum de ea Dynastia Locis nunc. Primum Editis. Auctore R. P. A. Dozy. Vol. Prius.—BY THE CURATORS OF THE ACADEMY OF LEIDEN.

The Oriental Christian Spectator, Vol. VIII. No. 2nd.—BY THE EDITOR.

The Calcutta Christian Observer, for March, 1847.—BY THE EDITORS.

R. Griffin & Co.'s Catalogue of Books and Stationary.—BY R. GRIFFIN & Co.

Statement of Facts relative to the transactions between the writer and the late British Political Mission to the Court of Shoa, in Abyssinia, by C. T. Beke, Esq.—BY THE AUTHOR.

A grammar of the Tahitian dialect of the Polynesian Language.—BY THE REV. J. LONG.

Biblical and Theological Vocabulary in English and Bengálí.—BY THE SAME.

Dr. Carey's grammar of the Burman Language.—BY THE SAME.

Bhagavat Gita, textum recensuit at notationes criticas et interpretationem Latinam adjecit G. Schlegel; Editio altera auctior et emendatior cura Christiani Lasseni.—BY THE EDITOR.

Kal'ha, Kena, Prasna, Mundaka, Mandukya, Aitareya, and Vajsaneya Oopauśhads.—BY BABU RAJENDRALAL MITTRA.

EXCHANGED.

The London, Edinburgh, and Dublin Philosophical Magazine, Nos. 196—7.

Transactions of the Geological Society of London, Vol. VII.—part 3rd

PURCHASED.

Journal des Savans, Octobre 1846.

The Annals and Magazine of Natural History, for December, 1846.

The Lord Bishop having retired and Mr. Bushby taken the chair.

*Mr. Hume* rose and said there was a passage in the report lately published to which he wished to call attention. “Regarding Dr. Cantor's very beautiful drawings, the Secretaries have failed to obtain some essential information, and which they cannot hope for before Mr. Torren's expected visit to Calcutta in the ensuing month. The Committee of Papers confidently hope that in connexion with the Journal nearly the whole of Dr. Cantor's drawings will be published by the Society within a moderate period.” He wished to ask if the information alluded to had been obtained. Further, on turning to the accounts he found that 2561 Rs. had already been spent on the Cantor drawings. He supposed that the accounts published with the Report were passed and beyond discussion, but he desired to be informed how many of these drawings were actually completed, and whether vouchers were forthcoming for the sums paid. He wanted a direct answer, a plain yes or no, to these questions.

*Dr. O'Shaughnessy*, (Senior Secretary present) replied that had Mr. Hume given any notice of his intention to ask these questions precise answers would have been in readiness. He regretted Mr. Hume had not started the discussion at the meeting regularly fixed for the consideration of the Report. He objected to Mr. Hume's categorical mode of questioning, as one uncalled for and unnecessary among a Society of gentlemen, whose only desire could be to aid each other in every enquiry calculated for the Society's benefit. Dr. O'Shaughnessy proceeded to observe

that the accounts were now printed for the first time since 1842. They were printed for general information, and although they had doubtless been submitted to regular meetings every year by his distinguished predecessor, still the Society at large had had no opportunity of examining them, and he considered every item fairly open to investigation. As to the number of Dr. Cantor's drawings completed, he believed it to be 13 or 14. Mr. Muller, the accountant, could say whether vouchers were in existence or not. He however begged permission to disclaim all responsibility for himself or his colleague Mr. Laidlay for any of the expenditure on account of the "Burnes or Cantor drawings," all of which had been entered upon previous to his election, and all further outlay upon which had been stopped on his suggestion, on his taking charge of the office. Mr. Piddington was at the time the executive officer of the Society in the arrangements made, and that gentleman could of course give any explanation required. He had only to add with reference to the intention of the Committee to publish the Cantor drawings in connexion with the Journal, that it was intended that any such cost should be included in the sum of 350 Rs. monthly set apart for that periodical.

*Mr. Muller* stated that on his being appointed accountant in July, in succession to Mr. Bolst, he found the papers of the Society in such confusion that he had the utmost difficulty in bringing them into any order. The vouchers he received were all without number or classification. He could not speak positively as to the existence of vouchers for the payments now under discussion, but at the next meeting he would be prepared with every information on this subject.

*Mr. Blyth*, Curator in the Zoological Department, begged permission to disavow all responsibility regarding the publication of the Burnes' drawings, which he looked upon as equally discreditable as works of art and in a scientific point of view. He had never been consulted as to their publication, although from his office in the Society his advice might have been naturally looked for.

*Mr. Piddington*, on being called upon, said that the history of the Burnes' drawings was, briefly, that being sent to the Society from Government, their publication was determined upon by the Society at a regular meeting, and a Committee named, of which he had been Secretary, to superintend the work, he being at that time only a member and not

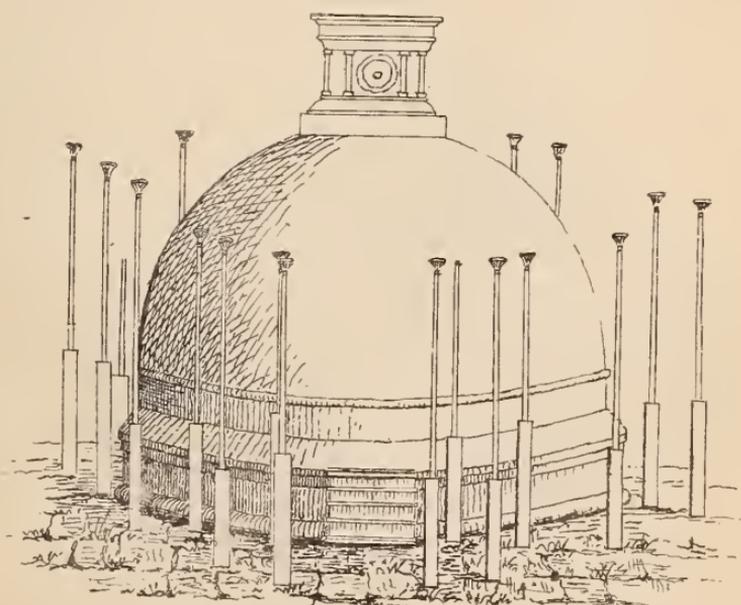
an officer of the Society. The estimates and report of that Committee were duly sanctioned and approved of by the Society, and reports of progress were from time to time made and confirmed; all of which would be found in the proceedings of those years. The coloured plates were also exhibited with these reports, and unequivocally pronounced to be most creditable to the artists, as *exact copies* of the drawings, which together with the determination that the whole of the drawings were to be published, and not a selection from them, was the principle adopted by the Committee and confirmed by the Society. Whatever then had been done was the act of the Society and of no one individual. With respect to Dr. Cantor's Chusan drawings, the superintendance of part of these also had fallen under his management when Sub-Secretary. He was unable to say by what authority this undertaking had been commenced, but he received orders from the late Secretary, Mr. Torrens, to obtain estimates, and no bargain was concluded without his full knowledge and approbation; it being simply his (Mr. Piddington's) duty to carry on the Society's work as ordered by the Secretary. Dr. Cantor, himself a first rate artist, had pronounced his highest approbation of the style in which his work had been so far reproduced as exceeding any thing he supposed could have been done in Calcutta, as had also the late Dr. Griffiths. With respect to the charges, it was impossible for him to do more than to state generally that the colouring of plates of drawings of Natural History, was always most expensive, and that all other accessaries also were required to be of the first rate talent and quality procurable, and to this was to be attributed the high charges for these works, if they really were high, which he did not think they were. As to the gross amount charged in the account, of that he could not speak, having, as he desired expressly to state, no control whatsoever over the expenditure or payment, farther than to audit bills, but the whole of the estimates and every paper connected with these publications had been specially and most carefully made over by him to the late Secretary in March last, and these, together with the accountant's vouchers for payments ought to be forthcoming.

The original drawings and sets of the lithographed copies were now produced by the Librarian and handed round for examination of the members.

*Mr. Hume* then observed that examination of the drawings and



*Thuparamaya Dagobah.*

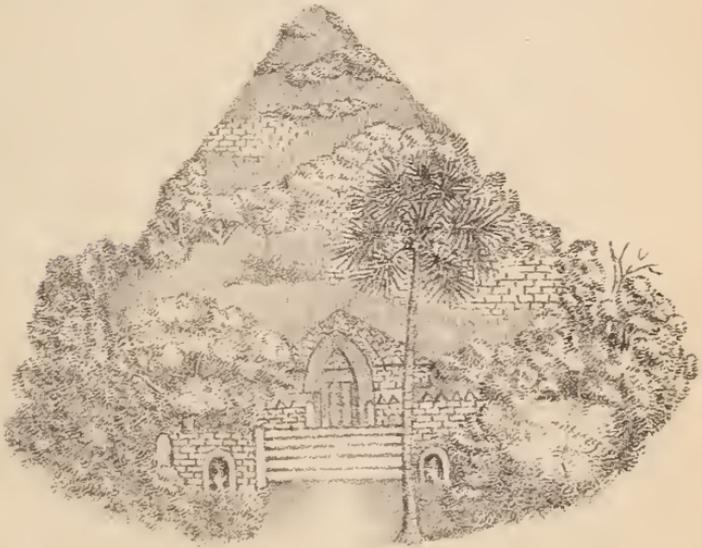


*Lankaramaya Dagobah*





*The Saitawanorámaya Dagobah.*



*The Ruanwelle Dagobah.*



lithographs confirmed him in the belief that the funds of the Society had been most improvidently wasted. The sets of Cantor's collection had cost Rs. 2561, being 183 Rs. each set—now he had much experience in the expense of lithographs, and would pledge himself to produce plates infinitely superior to those now before the Society at the cost of from 5 to 10 Rupees per 100. Whether vouchers were forthcoming or not was now of no consequence. The money had been irrecoverably lost, but to guard against future extravagance of this kind he proposed, that, “no future outlay take place for drawings of any kind without regular estimates being in the first place submitted to and approved by a general meeting.”

*Dr. O'Shaughnessy* having seconded the resolution it was unanimously carried.

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We must not allow the present occasion to pass without adverting to the highly interesting lecture on the Buddhistical remains of Gyah and its neighbourhood, delivered in the Society's hall, on the 31st ult. by Capt. Kittoe. As the substance of the lecture is contained in the various papers handed to the Secretaries by that gentleman for publication in the *Journal*, it is unnecessary to give any more extended notice of it here; but we may mention that there was a goodly attendance of both members and strangers, who appeared much gratified with the instruction and entertainment of the evening. We trust that Capt. Kittoe's good example will be followed by others whose researches admit of communication in the same agreeable form.







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