DESCRIPTIVE CATALOGUE

OF THE

FOSSIL REMAINS

OF

VERTEBRATA

FROM

THE SEWALIK HILLS, THE NERBUDDA, PERIM ISLAND, &c.

IN THE

MUSEUM

OF THE

Asiatic Society of Bengal.

BY

HUGH FALCONER, M.D. F.R.S. G.S. & L.S.

ASSISTED BY

H. WALKER, ESQ.,

LATE PROFESSOR OF ANATOMY AND PHYSIOLOGY, CALCUTTA.

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PREFATORY REMARKS.

THIS Catalogue has been undertaken with a view to endeavour to ascertain the extent of the various collections of vertebrate Fossil remains which have, at different times, been presented to the Asiatic Society of Bengal.

No separate record of these presentations appears to have been ever kept by the Society; nor, strange to say, has the correspondence of the Donors been preserved; so that nothing, in the shape of information regarding them is now accessible, besides the notices often brief and scanty in details contained in the Proceedings as printed in the Journal.

The collections may be classified under two heads, viz. Indian and Foreign.

The most important of the Indian, may be arranged conveniently in a Geographical order thus, the collections, from 1st, Ava; 2nd, The Sewalik Hills; 3rd, The Valley of the Nerbudda; 4th, Perim Island and the Gulf of Cambay; 5th, Scinde; 6th, The Alluvium of the Jumna River; 7th, A few specimens from the Delta of the Ganges, and from the Banks of the Betwa River.

The foreign collections are of less importance. They consist: 1st, of a few *Enaliosaurian* remains probably from the English Lias, but they bear no marks, nor has any information been found out regarding them; 2nd, some *Chelonian* remains of very modern aspect from the Mauritius; 3rd, a very interesting series of Reptilian remains from the older secondary strata of the Cape of Good Hope, consisting chiefly of bones of

Dicynodon. It is worthy of remark that these remains were presented to the Asiatic Society in 1836 by Mr. Pope, of the Cape of Good Hope, through Mr. J. Trotter, nine years before Mr. Bain was rewarded in 1845, for their supposed first discovery by the award of the proceeds of the Wollaston Fund, by the Geological Society of London. It is stated in the proceedings of the Society that Mr. Pope "the modest discoverer of this new fossil deposit" found them in the bed of the *Ganka* River in the district between the *Zwarteberg* and the *Nieuwbergen* the Central part of the Cape Colony Lat. 33° S. and 22°—23° W. Long. being the district where Mr. Bain, several years afterwards, met with his specimens (Jour. A. S. Vol. V. p. 518.)

Besides those above enumerated, the Society's Museum possesses, of foreign specimens, some cave bones of the *Ursus spelæus* from Germany; also casts of English Coprolites, &c. presented by Dr. Buckland, and of *Basilosaurus* remains (*Zeuglodon* of Owen) presented by Dr. Harlan from America.

The main object of the present Catalogue was to identify, and determine the extent of the Indian Collections; and no language can exceed the appalling confusion, disorder and dilapidation in which they were found. Fossil bones from the Lias of England, from the Cape of Good Hope, Ava, Perim Island, the valley of the Nerbudda and the Sewalik Hills, huddled together in heaps, distributed over various rooms on the ground floor, and in ninety-nine cases out of the hundred, without a label or mark of any kind whatsoever to indicate whence they came! Many valuable specimens that had been presented to the Society were lost; others were found broken and the missing pieces either never recovered, or only after a search that extended over weeks. The only exception was in the case of Col. Colvin's second presentation, the specimens belonging to which were in glazed cases, in fair preservation and marked with distinctive numbers.

The following remarks occur in a paper on Col. Colvin's fossils by James Prinsep, dated the 6th April, 1836.

"The Society will doubtless be eager to do every honour to the munificent donor of these splendid Fossils, if it has any real wish to acquire the reputation of possessing a valuable museum. The foundation of our fossil collection was but laid four years ago, and already through the contributions of Col. Burney, Dr. Spilsbury, Capt. Smith, Mr. Dean, &c. now enriched by Col. Colvin's vast store of specimens, it has become necessary to devote an entire apartment to this instructive department of Natural History. Our smallest return of gratitude to those who have been at such considerable expense in promoting the Society's interests will be to do honor to what has been so generously bestowed, by making up fit cabinets to exhibit them to the best advantage "and by spreading the knowledge of them as expeditiously and widely as possible." (Journal A. S. Vol. V. p. 181.) The commentary upon this passage, is to be found four years after in Mr. Piddington's reports, when he officiated as Curator. In his first monthly report dated the 30th November, 1840, he refers to the sad dilapidation going on among the Geological and Palæontological Collections, partly from trusting to very perishable recording by ink and paper labels in a climate like this; partly from the almost entire absence of any general or serial Catalogues to the various collections; and partly from breaking into the Collections for completing arrangements, that were left incomplete, or never carried out. In the Palæontological collection, there were no registers or Catalogues beyond the few lists printed in the Journal, and the specimens were then "fast loosing their labels of names, and above all, of localities." In his subsequent reports (Vol. IX. pp. 863, 943, 1056, and Vol. X. pp. 166, 415, 675,) he mentions the steps he was then taking to remedy these evils, and it is only an act of bare justice in me now to state that I have seen abundant evidence in the methodical labels of the cases and drafts of commenced Catalogues which are still in existence, that Mr. Piddington was doing his best and with considerable success, during the eleven months when he officiated as Curator, to place the Palæontological collections in

an orderly and accessible condition. What was incumbent on the Society, was simply to act up to James Prinsep's recommendations in providing suitable cases for the preservation of the fossils and keeping them separate. That it was under both an implied contract and an obligation to do so when it accepted the collections and acknowledged their receipt in its printed proceedings, no one can deny; yet it is quite within the truth of the facts to state, that the Asiatic Society has broken faith with every donor from whom it ever received Indian Fossil collections, by the signal neglect with which it treated the specimens after they were once housed within its walls. But this was not all. There is a pile of rubbish in the yard, known by a whimsical name, consisting of ejected materials, such as discarded rock specimens, broken corals, &c. It was the practice apparently, to pitch or sweep out fossil bones upon this heap. Colonel Baker one day disentombed from it, an important portion of a valuable and cherished Dadoopoor specimen and fitted it to the original mass. The valuable and rare specimen of the lower jaw of *Merycopotamus dissimilis* (No. S. 246 of this Cat.) together with fragments of the Gigantic Tortoise and numerous other fossil bones were found by myself in the same heap of rubbish outside!

Amidst such alleged disorder and huddling together of specimens from different strata of different geographical origin, it may be asked how was it possible to make any thing approaching a satisfactory or reliable Catalogue so far as localities are concerned? The reply is that on this head the Catalogue does not profess to be more than approximative; a great number of the assigned localities are simply conjectural. But the following circumstances furnished material aid. Besides being well acquainted with the ordinary characters and appearance of the Sewalik fossils, I was familiar with those of the Perim Island specimens, having examined and in part described a large collection presented by Capt. Fulljames to the Geological Society of London. I was familiar also with the first Ava Collection,

made by Mr. Crawfurd in 1826, having carefully gone over the whole series in the same museum. The characters of the Nerbudda specimens were familiar to me through the collections taken to England by Mr. Charles Fraser; and Dr. Spilsbury was at hand to point out all which he had presented to the Asiatic Society, that were still in existence.

The Perim Island fossils, are usually imbedded in a yellow marly conglomerate, very different from any thing met with among the Sewalik or Ava Fossils. Where the matrix has been washed off, the specimens have usually more or less of marine encrustation upon them. These characters, readily distinguish them from the Ava, Sewalik Hills, or Nerbudda, fossils: and no specimen probably has been introduced into the Perim portion of the Catalogue, that did not come from the Island or adjoining parts of the Gulf of Cambay. No elephants' molars were found among them although Capt. Fulljames mentions "the teeth of Mammoth" as having been transmitted by him to the Asiatic Society. (Journ. A. S. Vol. V. p. 200.)

The Nerbudda fossils are readily distinguished from those of Ava and the Sewalik Hills by their mineral characters; but this help fails in discriminating them from the fossils of the Jumna Alluvium. Some specimens have been conjecturally introduced into the Nerbudda Catalogue although not recognized by Dr. Spilsbury, the only Nerbudda Donor. This circumstance throws great doubt on the place assigned to them. Are they from the Jumna, or of the Culpee specimens presented by Dr. Leslie?*

The great mass of the Sewalik Hill collections were separated without much hesitation.

The most unsatisfactory part of the Catalogue is what regards the Ava collection. The greater portion of it was presented by Col. Burney, and the rough list by James Prinsep, printed in the proceedings (Vol. III. p. 365 J. A. S.) enumerates the following:

* Vide Gleanings, Vol. I. p. 23, and J. A. S. Vol. II. p. 623.

2 Jaws and several teeth of fossil elephant.
7 jaws and teeth of Mastodon, Hippopotamus, &c.
8 fragments of Alligators' Jaws.
47 saurian (Crocodile) vertebræ.
170 fragments of Emys and Trionyx shell.
1 humerus of Rhinoceros.
200 unclassified fragments of Bone.

435.

The Ava specimens are very often strongly impregnated with hydrate of iron, black and heavy with a gritty or gravelly matrix. But some of the Sewalik localities yield specimens having the same characters, so that when placed together they can hardly be distinguished. In searching for Col. Burney's 435 specimens, only one was found namely a Crocodile's vertebra (No. A. 255) bearing an Ava label. Of the two jaws and several teeth of fossil Elephant, not one was met with, which could confidently be assigned to Ava. The same was the case with *Hippopotamus*, although a lower jaw from Col. Burney containing all the incisors is specially described (J. A. S. Vol. VI. p. 1099.) All the black, iron infiltrated fragments of *Emys* and *Trionyx* bones scattered about the different rooms, were brought together to try and make up 170 pieces mentioned in the list. I have misgivings now that several of the *Stegodon* group of elephant molars assigned to the Ava catalogue were in reality yielded by the Sewalik Hills: and that the episternal portions of the Gigantic Tortoise attributed in the catalogue to the latter may have been derived from Ava. In short the Ava portion of the Catalogue is wholly conjectural and therefore untrustworthy. But what help was there for it, where only one specimen out of 435, bore a label to distinguish them from hundreds of others? The small collection of Fossil bones from Ava presented by Mr. J. Calder in 1831, and partly described in the Gleanings Vol. III. p. 161 was deferred to the last, and then from want of time left uncatalogued. Fortunately the specimens have been kept

together, and are in the same state now as when originally presented.

The Scinde collection although of much interest is comparatively limited.

The Jumna alluvium collection consists of specimens in part presented by Capt. E. Smith and Lieut. Burt of the Engineers, but the greater number, by Serjt. E. Dean.

Capt. Smith's specimens were readily discovered, and among them, besides those enumerated and figured in the journal, I found the perfect Astragalus of a *Hippopotamus* distinct from the Sewalik Hill species, and apparently identical with the Nerbudda *Tetraprotodon*. But Serjeant Deans' series proved to be in such confusion, that under the pressure of an approaching departure for Europe, I felt that I could not afford them the time they required and left them unarranged. They appear to have been mixed with many Ava or other specimens which bear no mark or number to indicate which is which. I regret this the more, as I consider the Jumna Fossils to be the most promising of results bearing upon the human period, and I strongly recommend them to any one who is able and willing to undertake the task of investigating them.

Mr. James Prinsep, in his notes* upon Col. Colvin's 2nd presentation states, that in order to bring like to like, he had altered the numbering of the Catalogue of them furnished by Lieutenants Baker and Durand. But on going into the details of Mr. Prinsep's numbers, it was found that they did not, in a great many instances, agree with the specification in the Catalogue; what was entered as a vertebra proving to be the end of a tibia and vice versâ, so that the numbers were of no assistance in making out the specimens for this Catalogue. The greater part of Mr. Dawes' specimens were made out by the numbers, which were in this case fortunately left undisturbed. They have not been kept separate; but interculated with the great mass of the Sewalik specimens in that part of the Catalogue.

* J. A. S. Vol. V. p. 182.

It was intended to have serially arranged the specimens in the order of their affinities: but this was found to be impracticable as there was no space available to distribute them in a rough preliminary arrangement. In consequence, bones belonging to one species, instead of following in consecutive numbers are distributed irregularly throughout. In this view, the Catalogue can only be regarded as a first effort to serve the preparation of a more perfect Catalogue hereafter. It has assumed the character of a descriptive Catalogue instead of being merely a numerical and nominal one in consequence of the great number of new or important specimens that required description.

Each geographical series has its own numbers, thus the

Ava specimens are marked	A. A. 1 2 &c.
Sewalik Hills, ditto.....	S. S. S. 1 2 3 &c.
Perim Island	P. I. P. I. P. I. 1 2 3
Nerbudda.....	N. N. N. 1 2 3 &c.
Scinde, ditto	Sc. Sc. Sc. 1 2 3 &c.
Cape of Good Hope, ditto	C. G. H. C. G. H. C. G. H. 1 2 3 &c.

The discriminating numbers have been attached both by paper labels covered over with mastic varnish, and with white paint on a black ground, so as to secure every chance of durability.

During the progress of the Catalogue a party of stone-cutters were employed in chiselling the specimens, and clearing them of matrix, most of the specimens in the collection have in this manner been brought fully out; where they required it.

The greater part of the Catalogue is in the hand-writing of my friend Dr. Henry Walker: and I will say no more of his services, than that without his most efficient aid, this Catalogue

could not have been accomplished. The aid applied to every thing connected with it.

I would desire to express a wish that the Catalogue such as it is, be preserved as now written, for satisfactory reference by those who may have occasion to examine the fossils hereafter.

28*th October*, 1855. H. F.

P. S.—The specimens from the Delta of the Ganges and the Banks of the Betwa River, like those from the Jumna, have been left uncatalogued. Broken specimens were united by a native cement of gluten and quick lime.

H. F.

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
A/1	Mastodon latidens.	Fine specimen of the upper jaw, both sides containing 1 entire molar in each and the anterior ridge behind of another molar germ. The specimen is broken off horizontally about 4 inches above the base of the crown of the molars shewing the floor of the nasal fossa. The palate is perfect from the posterior border to the commencement of the diasteme where it is abruptly broken off. The teeth are in the most perfect state of preservation, the enamel is thick, rugose at the sides and presenting on the crown a clouded pearly appearence; the anterior of the molars consists of 4 ridges and a " talon" or heel ridge; the 3 anterior ridges are more or less worn, the 4th ridge only slightly touched in the middle: each tooth exhibits longitudinally a line bisecting it into an outer and an inner half: the ridges are transverse the furrow intervening being unbroken, with a small mammillary process				Purchased from the Government Tosha khannah. A portion of the enamel border of the anterior ridge left molar is broken off on the outside. The enamel very thick, there is no appearance of 'crusta petrosa' on the furrows. The rugosity of the surface runs in transverse wavy grooves or meshes somewhat as in the enamel surface of Rhinoceros, but more marked.

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
A 19	Elephas (Stegodon) Cliftii.	Fragment of ivory tusk of small diam : section shews engine-turning.	Ava.	...	Col. Burney	No mark.
					...	No mark.
20	Ditto.	Ditto ditto deeply grooved, belongs to near tip, well engine-turned.	Do.	...	...	No mark.
21	Ditto.	Ditto ditto, weathered and concentric laminæ.	Do. ?	...	...	No mark.
22	Ditto.	Ditto ditto, oval section.	Do. ?	...	...	No mark.
23	Rhinoceros.	Fine fragment comprising the lower half of the right humerus with the articular surface very perfect, an old animal, very nearly of the size of the Sumatran Rhinoceros.	Do. ?	...	...	No mark.
24	Ditto.	Lower end of radius right side, shewing the articular surface with part of the shaft of very large size. Width of articular head being 5,7 inches : Antero-post. diam. 3 inches.	Do. ?	...	...	No mark.
25	Ditto ?	Fragment of Os. innominatum of large size.	Do. ?	...	...	No mark.
26	Ditto.	Axis, a good deal mutilated, shewing the greater part of the body but the apophyses broken off, posterior articular	Do. ?	...	...	No mark. The mineral condition and wearing like some of the

		surface cap-shaped, odontoid process thick and massive, belonged to an animal of large size.				Perim Island fossils.
A/27	—— ?	Acetabulum too mutilated for determination, considerable size with iron coloured matrix.	Ava ? or Perim ?			
28	Mastodon	Proximate phalanx of hind leg, very thick and massive, highly coloured with iron infiltration.	Ava.	...	Col. Burney	No mark.
29	Do.	Mutilated fragment of a large massive acetabulum in two pieces black and heavy like a mass of iron.	Ava.	...	...	No mark.
A/30	Mastodon	Dorsal vertebra, apophysis broken off: body compressed and shewing very approximated costal articulations. Transverse diameter of body 3,8 inches, Antero. post. diam. 3,5 inches, thickness 2 inches. Very small for a proboscid. vertebra; highly infiltrated with iron.	Ava.	...	...	No mark.
A/31	Hippopotamus.	Small mutilated fragment of upper maxill. with half of one molar, too imperfect for further determination.	Ava.	...	...	Do.
22	Do.	Fragment of lower jaw, shewing one molar of which the crown is broken off, fangs only remaining.	Do.	...	...	Do.
33	Ruminant.	Top of radius right side with portion of shaft, the articular surface shewing triple depression, of moderate size.	Do.	...	...	Do.

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
S/1	Mastodon Sivalensis	Fine specimen of the upper maxilla left side, comprising the greater portion of the palate and two molars embedded in the jaw, with four empty pits, marking the situation of the fangs of the second milk molar which had fallen out. The third milk molar is shewn nearly entire, with the enamel crown broken off at the outside of the first two ridges, and the first three ridges are seen to be touched with wear forming depressed cups. The crown of the tooth is bisected longitudinally into an outer and inner division, and the groups of mammillæ are seen to alternate instead of being transverse with accessory mammillæ in the valleys. This is the normal character of the species distinguishing it alike from *M. latidens* and *M. Perimensis*. The surface of the enamel is deeply grooved vertically so that the ridges when worn down present a very complex pattern. Behind the fourth ridge is a talon consisting of a complicated group of small mammillæ. To the rear of	Sewalik Hills.	...	Unknown.	The matrix, of which but little remains, is somewhat ferruginous, but it differs from the usual condition of the Ava matrix. Another specimen of nearly the same age is described below (No. 13,) but comprising both jaws.

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
S 269	Rhinoceros. R. Sivalensis ?	Fragments comprising the greater part of the cranium broken off behind about the posterior parts of the zygomatic arch, the fracture having removed the whole of the occiput and the left zygomatic arch. The specimen had also suffered from a crush acting from above downwards from right to left; the greater part of the parietal and the whole of the frontal, and also the united nasals are present; the right orbit broken off; the left nearly entire. The right maxillary shews the remains more or less of seven molars, the last broken off, the penultimate well worn; the anterior teeth have all their crowns broken off nearly on a level with the alveoli; on the left side, the crowns are all broken off; the palate seems narrow, but this may be probably owing to the crush; the tip of the nasal shews the rugous gibbosity of the base of a *very large* horn. The species was evidently unicorned.	Sewalik Hills. near Nahun.	J. A. S. Vol. VI. p. 899.	Wm. Dawe.	No. 25, of Dawe's Cat.

270	Rhinoceros. ——— ?	Lower jaw, left side shewing greater part of horizontal ramus, but broken off in front and behind, with the remains of four molars, the crowns all broken off.	Sewalik Hills.	J. A. S. Vol. V. p. 182.	Col. Colvin.	No. 152, of B. & D.'s Cat. Too mutilated for identification.
271	Do.	Lower jaw, right side, broken off in front at commencement of symphysis and behind at the coronoid, with remains of five molars, much mutilated. In condition like No. 270.	Do.	Do.	Do.	No. 153, of do.
272	Do.	Fine fragment comprising the lower end of tibia and fibula, right side, attached to each other and to the bones of the tarsus in their natural position, together with the greater part of the length of three metatarsals also united, and attached to the carpus: the inferior apophysis of the calcaneum is broken off, the tibia bent nearly at right angles with tarsus and metatarsus. All the bones are held together by argillaceous matrix in their natural relative position in a manner which is remarkable for the fossil state among Sewalik remains.	Do. Moginund.	Do. Figure 19 of pl. 17.	Do.	No number. Found in the clay marl of Moginund. "Soft" fossil.
273	Do.	Upper extremity of humerus shewing the head upper trochanters, the descending spine of the large tuberosity broken off: of large size.	Sewalik Hills.	J. A. S. Vol. V. p. 182.	Do.	No. 163, of B. and D.'s Cat.

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
S 274	Rhinoceros. ——— ?	Upper extremity of humerus, right side, shewing the head and both tuberosities as also the middle apophysis of the anter.	Sewalik Hills.	J. A. S. Vol. V. p. 182.	Col. Colvin.	No. 150, of B. & D.'s Cat.
275	Do.	Ditto ditto, left side.	Do.	Do.	Do.	No. 151, of do.
276	Do.	Shaft of humerus, articulating epiphysis and tuberosities broken off.	Do.	Do.	Do.	No. 160, of do.
277	Do.	Right femur, articulating head with part of shaft attached; leafy expansion of third trochanter broken off.	Do.	Do.	Do.	No. lost.
278	Do.	Shaft of femur, left side, articular epiphysis and trochanters broken off, base of leafy expansion remaining.	Do.	Do.	Do.	No. 167, of B. and D.'s Cat.
279	Do.	Mutilated fragment of shaft of femur, right side, articular epiphysis broken off.	Do.	Do.	Do.	No. 168, of do.
280	Do.	Lower end of femur, left side, shewing the condyles and trochlear pulley with a short portion of the shaft attached.	Do.	Do.	Do.	No. 169, of do.
281	Do.	Lower end of femur, right side, with the inner surface of the inner condyle partly broken off.	Do.	Do.	Do.	No. 141, of do.
282	Do.	Mutilated humerus, the articular epiphysis below broken off; part of the head re-	Do.	Do.	Do.	No. 162, of do.

		maining, the tubercles being broken off. Belonged to a young animal.				
283	Do.	Top of ulna, left side, shewing articular pulley and part of olecranon.	Sewalik Hills.	J. A. S. Vol. V. p. 182.	Unknown.	No. 170, of B. & D.'s Cat.
284	Do.	Ditto right side in like condition.	Do.	Do.	Do.	No. 165, of do.
285	Do.	Upper half of right tibia with articular surface nearly entire.	Do.	Do.	Do.	No. 171, of do.
286	Do.	Lower end of humerus, left side, broken off at commencement of shaft.	Do.	Do.	Do.	No. 164, of do.
287	Do.	Astragalus, very perfect, of right side.	Do.	Do.	Do.	No. 181, of do.
288	Do.	Calcaneum, left side, nearly entire.	Do.	Do.	Do.	No. 180, of do.
289	Do.	Middle metacarpal of right fore leg entire.	Do.	Do.	Do.	No. 176, of do.
290	Do.	Distal extremity of metacarpal or metatarsal of large size.	Do.	Do.	Do.	No. 177, of do.
291	Do.	Fragment of middle metatarsal, right side, distal extremity broken off, large size.	Do.	Do.	Do.	No. 179, of do.
292	Hippopotamus (Hexn.) Sivalensis	Lower end of tibia, left side, shewing the articular surface and part of shaft.	Do.	Do.	Do.	No. 224, of do.
293	Do.	Portion of right scapula, comprising the glenoid cavity base of the acromion and a part of the spine; blade broken off, the coracoid tubercle very large and salient.	Do.	...	Unknown.	Determination of the genus not quite certain, there being no recent bone for comparison.
294	Do. ?	Part of right os innominatum comprising portion of the blade of the Ilium, and of the ischium, with the acetabulum.	Do.	...	Unknown. Col. Colvin.	No mark or number. Determination approximate.

		broken across horizontally near the base of the teeth, and containing the last two molars, the penultimate well worn with very flexuous enamel; the last molar in germ and of very large size.				
320	Do.	Mutilated fragment comprising part of the last true molar, much broken and cemented with matrix.	Do.	...	Col. Colvin.	No. 186, of B. and D.'s Cat.
321	Do.	Fragment comprising the posterior part of horizontal ramus lower jaw right side, containing the two last teeth in situ: they are in the same condition of wear as No. 319, but considerably smaller.	Do.	...	Do.	No number.
322	Rhinoceros. ——— ?	Fragment of lower jaw, right side, of a young animal, containing one milk molar emerged from the alveolus and quite entire.	Do.	...	Do.	No. 151, of B. and D.'s Cat.
323	Do.	Fragment of lower jaw, comprising an anterior molar, the top of the crown of which is slightly touched with wear.	Do.	...	Do.	No number.
324	Do.	Molar of upper jaw, nearly entire, with part of palate attached.	Do.	...	Do. ?	Do.
325	Do.	Fragment of molar consisting only of the outer plate of enamel.	Do.	...	Do.	No. 154, of B. and D.'s Cat.
326	Do.	Entire outer incisor, lower jaw right side, resembling in form a good deal that of Rhin. ——— ?				

676	Equus Sivalensis	Mass of matrix containing calcaneum of *equus sivalensis* with two vertebræ adhering.	Moginund. Do.			
677	Do.	Lower end of right radius.	Do.	...	...	From A. Conolly's specimens.
678	Do.	Five specimens, comprising lower end of tibia, articular surface complete.				
679	Do.	Lower end of metacarpal or metatarsal.	Do.			
680	Do.	Ditto ditto.	Do.			
681	Do.	Lower end of large metacarpal.	Nahun.	...	Con. Dawe.	
682	Do.	Middle phalanx.	Sewalik	...	Col. Colvin ?	
683	Rhinoceros.	Dental extremity of metacarpal with articulate surface, large size.	Do.			
684	Ruminant.	Lower end of right radius with carpus and metacarpal bone, of the size of a deer.	Do.			
685	Do.	Proximal phalanx of size of a large deer.	Do.			
686	Do.	Fragment of ditto.	Do.	...	...	No.562, of B.&D.'s Cat.
687	Do.	Lower end of radius, size of a deer.	Do.	...	...	No. 217, of do.
688	Do.	Upper end, right femur, head broken off.	Do.	...	...	No. 492, of do.
689	Do.	Fragment lower jaw.	Do.	...	...	No. 318, of do.
690	Camelopardalis Sivalensis	Fragment comprising the upper portion of the shaft of the left radius, the articulating head broken off: the bone is much flattened, and its outer border forms a considerable curve, in consequence of the abrupt expansion of the articulating head, and the sudden contraction of the shaft below it. It is not apparent whether the articulating epiphyses had been synostosed: but the bone is nearly equal in	Do.	...	Col. Colvin.	No mark or number of any kind.

		too much mutilated and covered by gritty matrix for precise determination.				
759	?	Fragment of a large sacrum much mutilated, and inferior surface covered by matrix (undetermined).	Sewalik Hills.	...	...	No mark or number.
760	?	A large Lumbar vertebra, undetermined.	...	...	...	No. 203, of B. and D.'s Catalogue.
761	?	A ditto less perfect, an Hippopotamus ?	...	...	...	No. 204, of do.
762	?	A ditto vertebra, undetermined.	...	...	...	No. 202, of do.
763	?	A dorsal vertebra, the posterior surface dilated with a broad border like exostosis : the counterpart of No. 736.	...	...	...	No mark or number, vide No. 736.
764	Rhinoceros.	Lower end, right tibia, of large size.	Do.	...	Col. Colvin.	No mark or number.
765	Do.	Ditto ditto ditto.	Do.	J. A. S. Vol. V. p. 182.	Do.	No. 173, of B. and D.'s Catalogue.
766	Do.	Ditto ditto left side of ditto.	Do.	Do.	Do.	No. 174.
767	Do.	Ditto ditto right side of ditto.	Do.	Do.	Do.	No. 175.
768	Do.	Ditto ditto ditto of ditto.	Do.	Do.	Do.	No mark or number.
769	Do.	Right and left *Rotulæ* of large size and nearly counterpart specimens (somewhat uncertain having no recent specimen for comparison).	Do.	Do. p. 184.	Do.	Nos. 459 and 461, of B. and D.'s Cat.
770	Do.					
771	Do.	Top of right radius with articular surface.	Do.	Do.	Do.	No. 435, of do.
772	?	Top of left radius resembling the last, articular surface covered by matrix.	...	...	...	No. 443, of do.
773	Rhinoceros.	Astragalus (left) of a small sized species nearly entire (vide No. 287).	...	...	...	No. 247.

No.	Genus and Species.	Description of Specimen.	Where from.	Reference to history.	Donor.	Remarks.
S 774	Rhinoceros.	Proximal extremity of right inner metacarpal? too imperfect for precise identification.	Sewalik Hills.	...	Col. Colvin.	No mark or number.
775	Do.	Fragment distal extremity with articular surface of middle metatarsal of large size.	Do.	J. A. S. Vol. V. 182.	Do.	No. 180, of B. and D.'s Catalogue.
776	Do.	Proximal phalanx of a foreleg.	Do.	Do.	Do.	No. 240, of do.
777	Do.	Proximal extremity of right middle metatarsal.	Do.	Do.	Do.	No. 338, of do.
778	Do.	Distal extremity of inner metatarsal.	Do.	Do.	Do.	No mark in number.
779	Do.	Proximal extremity of middle metacarpal.	Do.	Do.	Do.	No. 159, of B. and D.'s Catalogue.
780	Sivatherium Giganteum.	*Scaphoid* bone of the right carpus. It is considerably larger in proportion in the antero-posterior direction than in the Giraffe and less so in the vertical direction, the articular surfaces being alike.	Do.	Do.	Do.	No mark or number.
781	Do.	*Semi-lunar* bone of the right carpus, it is considerably smaller in proportion than the Scaphoid, No. 780, not much exceeding the semi-lunar of the Giraffe, the posterior inferior articular surface is broken off. If Sivatherium, it must have belonged to a female or small individual.	Do.	J. A. S. Vol. V. p. 184.	Do.	No. 458, of B. and D.'s Catalogue.

782	Rhinoce-	Scaphoid and Semi-lunar of the left carpus	Sewalik	...	Col. Colvin ?	No mark or number.
783	ros.	of the same individual fitting together and connected by matrix, both of large size.	Hills. Moginund clay Bed.			
784	Do.	Scaphoid of right carpus more entire.	Do.	J. A. S. Vol. V. 184.	Col. Colvin.	No. 465, of B. and D.'s Catalogue.
785	Do.	Ditto of right carpus.	Do.	...	Do.	No. 460, of do.
786		Cuneiform bone of left carpus.	Do.	...	Do.	No. 473, (?) of B. and D.'s Catalogue.
787	Do.	Cuboid of left tarsus agreeing in size nearly with Rh. unicornis, but differing in form.				
788	Do.	Fragment of left Scapula, comprising glenoid cavity; tuberosity, and neck spine and lamina broken off; of the size of the Indian Unicorned Rhinoceros.	...	...	Do.	No. 157, of do.
789	Rumi- nant. ?	Fragment of a left scapula of large size comprising only the glenoid cavity and tuberosity, but both mutilated so as to render any determination doubtful: but most nearly approaching a large ruminant like the Giraffe. An *Sivather. ?*	Sewalik Hills.	...	Do.	No. 158, of do.
790	Do.	Fragment of right scapula in two pieces, comprising the glenoid cavity, tuberosity, and the commencement of the spine, greater part of lamina broken off.	Do. ?	...	...	An Ava ? no mark.
791	Do.	A nearly counterpart specimen left scapula shewing glenoid cavity, tuberosity and neck; also like the last belonging to one of the larger ruminants.	Do. ?	...	...	An Ava ? no mark.

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
S 807	Horse ?	Portion of shaft of a radius and ulna in connexion, right side, articular heads broken off.	Sewalik Hills.	J. A. S. Vol. V. p. 182.	Col. Colvin.	No. 413, of B. and D.'s Catalogue.
808	Rhinoceros.	Mutilated fragment of shaft of right (?) femur.	Do.	...	...	No mark.
809	Ruminant.	Distal extremity of proximal phalanx, too mutilated for determination but somewhat like camel.	Do.	...	...	No. 655, of B. and D.'s Catalogue.
810	Do.	Lower end of humerus: left.	Do.	...	...	No mark.
811	Elephant	Head of right ulna.	Do.	...	...	Do.
812	Do.	Middle portion of shaft of left fibula.	Do.	...	...	Do.
813 to 816	Do.	Metacarpal and metatarsal bones—precise determination not attempted.	Do.	...	...	No. 814 = 246 of B. and D.'s Catalogue. No. 816 = 244 of do.
817 818	Do.	Phalangal bones undetermined.	Do.	...	...	No mark.
819	Do.	Carpal bone undetermined.	Do.	...	...	Do.
820	Do.	Calcanecum—apophyses broken off.	Do.	...	...	Do.
821	Do.	Upper extremity of rib with articulating head.	Do.	...	...	Do.
822 to 827	Do.	Fragments of various portion of ribs.	Do.	...	...	Do.

No.	Genus and Species.	Description of Specimen.	Where from.	Reference to history.	Donor.	Remarks.
S 835	Ruminant. ?	Lower end of left femur of large size.	Sewalik Hills.	J. A. S. Vol. V. 182.	Col. Colvin.	No. 142, of B. and D.'s Catalogue.
836	Do.	Upper articular head of Tibia, size of *bos*.	Do.	Do.	Do.	No. 100, of do.
837	Do.	Ditto ditto, larger size.	Do.	Do.	Do.	No. 175, of do.
838	Do.	Ditto ditto, very large size belonging to one of the largest forms among the ruminantia.	Do.	...	...	No mark.
839	Do.	Ditto ditto, much mutilated—size of *bos*.	Do.	...	...	No mark.
840	—— ?	Upper end of tibia with portion of shaft; articular surface too much mutilated for determination.	Moginund.	Do.	Do.	No. 422, of B. and D.'s Catalogue.
841	Elephant.	Dorsal vertebra, a good deal covered with matrix.	Do.			
842	Rhinoceros	Olecranon—mutilated.	Do.	Do.	Do.	No. 453, of do.
843	Hippopotamus	Detached molar, upper jaw.	Do. ? Ava ?			No. 230, of do.
844	Do.	Distal extremity metatarsal or metacarpal.	Sewalik Hills.	Do.	Do.	
845	Ruminant Antelope?	Fragment of upper maxillary, right side, comprising 5 molars en suite of a young animal, of the size of *Antelope cervicapra*, the 5th molar in germ.	Do.	Do.	Do.	No. 150, of do.

No.	Genus and Species.	Description of Specimen.	Where from.	Reference to history.	Donor.	Remarks.
S 852		with 4 teeth in situ, the 3 posterior of which are entire, agreeing exactly in form with those of *Canis lupus*, but a little larger. No lower jaw in the collection has been found corresponding with them.				
853	Bos ?	Horizontal ramus lower jaw left side: a fragment containing two molars, and part of the socket of a third: of a young animal, the teeth unworn, probably Bovine.	Sewalik Hills.	...	...	No mark or No.
854	Rhinoceros.	The germ shell of a young anterior molar of the upper jaw, with a small piece of bone attached.	Do.	...	...	No mark or No.
855	Do.	Fragment of a large upper molar partly worn.	Do.	...	...	No mark or No.
856	—— ?	Right calcaneum mutilated and undetermined.	Do.	J. A. S, Vol. V. 184.	Col. Colvin.	No. 539, of B. and D.'s Catalogue, but there said to be radius.
857	—— ?	Another right calcaneum left undetermined.	Do.	Do.	Do.	No. 550 of do.
858	Ruminant ?	Upper end of humerus, shewing articulating head; tuberosities broken off so as to be of doubtful determination. Belonged to an animal the size of a large Bovine.	?	...	...	No mark or No. Origin doubtful.

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
P 1	Mastodon. M. perimensis.	Permanent molar, upper jaw, left side, with four ridges complete, first ridge worn (ante-penultimate).	Perim Island, Gulf of Cambay.	J. A. S. V. 761 & VI. 79. Fauna A. S. Part 4, pls. 31, 38, 39.	Unknown.	Characteristic specimen.
2	Do.	Upper molar, right side, probably penultimate, with 4 ridges, the first 2 worn.	Perim Island.	Loc. cit.	Do.	Ditto ditto.
3	Do.	Fragment of molar, consisting of outer part of 3 ridges, specimen incomplete.	Do.	Do.	Baron Hugel.	
4 to 12	Do.	Fragments of molars, small (*7a*, *7b*, *7c*).	Do.	Do.	Unknown.	The broken fragments of one or two specimens.
13	Do.	Molar, unworn, with 4 ridges and "talon," anterior portion wanting.	Do.	Do.	Do.	Highly characteristic.
14	Do.	Molar, lower jaw? 2 ridges, fragment unworn.	Do.	Do.	Do.	
15	Do.	Portion of molar with fang, amorphous.	Do.	Do.	Do.	
16	Mastodon?	Humerus, lower end, left side, huge size, in two pieces.	Do.	J. A. S. Vol. VI. 79.	Capt. Fulljames.	The largest known.
17	Mastodon?	First vertebra of neck (atlas) of large size, very complete.	Do.	As No. 1.	Unknown.	
18	Mastodon? or elephant?	Cervical vertebra, in 2 pieces, left half of neural arch broken off and lost, belonging to an animal of *enormous* size.	Do.	J. A. S. Vol. VI. p. 79.	Capt. Fulljames.	This must have belonged to a much larger animal (if

29	Rhinoceros.	Lower jaw, left side, including part of horizontal ramus, posterior angle and ascending ramus, and portion of the last molar: coronoid and condyle broken off: of very large size.	Do.	J. A. S. Vol. VI. p. 79.	Fulljames ?	Made out by the matrix.
30	Do.	Fragment consisting of the superior maxilla left side, containing 2 molars, well worn.	Do.	Do.	Do.	Matrix with marine bivalve-shells.
31	Do.	Lower jaw, right side, consisting of posterior angle with one unworn molar, and portion of ascending ramus, in 3 pieces: of much smaller size than No. 29 and probably of a young animal.	Do.	Do.	Do.	Dark colour, marine bivalves on it.
32	Do.	Fragment of jaw, containing portions of 2 molars: very much mutilated.	Do.	Do.	Unknown.	
33	Do.	Humerus, inferior end, right side, with articular surface.	Do.	...	Do.	Corresponds in size with lower jaw No. 29.
33*b*	Do.	Lower jaw, right side, young animal, containing one molar.	Do.	...	Do.	
34	Equus.	Upper jaw, left side, containing the 2 anterior premolars, well worn, corresponding in characters with Eq. Sivalensis, F. and C. Faun. Sival., pl. 82.	Do.	Do.	Fulljames.	
35	Do.	Astragalus, small size.	Do.	...	Unknown.	
36	Do.	Lower jaw, left side, containing the 4 anterior molars, well worn: truncated in front and behind, agrees with No. 34.	Do.			
37	Do.	Lower jaw, right side, containing the 3 anterior molars, with portion of the diastema in front, and truncated behind.	Do.	Do.	Fulljames.	Ticketed "Perim."

59	Antelope.	Portion of frontal comprising the orbital part and core of horn, with spiral turn, left side.	P. I.	J. A. S. Vol. — p. —	Baron Hugel.	
60	Camelopardalis.	Second or third dorsal vertebra of Giraffe, concave and convex articular surfaces present, apophyses wanting.	Do.	...	Fulljames ?	Further detailed comparison with the separate vertebræ necessary.
61	Do.	One of the anterior dorsal vertebræ with the apophyses of the left side on. Much mutilated.	Do.	...	...	Ditto, requiring further examination.
62	Do.	One of the dorsal vertebræ ? characters partly concealed by matrix.	Do.	...	...	Requiring further comparison.
63	Sus.	Lower jaw, left side, consisting of portion of horizontal ramus with fangs of 4 posterior molars, also part of ascending ramus of Sus Hysudricus. See No. 54.	Do.	...	...	Crowns of molars broken off.
64	Mastodon.	Portion of Ivory Tusk.	Do.	...	...	Mutilated piece.
65	Rhinoceros.	Lower end of tibia, left side, much mutilated, shewing part of the articular surface ; of larger size than Indian unicorned-rhinoceros.	Do.			
66	Equidæ.	Atlas of a very small-sized horse—Hippotherium antelopinum ? Fauna Ant. Siv.	Do.	...	Unknown.	
67	Hippother. antelop.	Axis, nearly entire, inferior cup wanting ; corresponding in size to No. 66.	Do.			
68	Do.	One of the middle cervical vertebræ with only the superior oblique process, left side, and body otherwise much mutilated.	Do.	...	...	An ruminant ?

94	— ?	Fragment of shaft of long bone, articular ends broken off: undetermined.	Do.			
95	— ?	Slab of bone undetermined.	Do.			
96	— ?	Portion of the shaft and articulating head of a long bone, too imperfect for satisfactory identification.	Do.			
97	Pachydermata.	Molar tooth detached, imbedded in matrix, undeterminable (an Rhinoceros ?)	Do.	...	...	Only the lower surface seen. The crown covered by matrix.
98	Colossochelys Atlas.	Rear portion of sternum of one side.	Do.	...	...	No mark.
99	— ?	Water worn undeterminable piece of bone. Infiltrated with iron, bivalve shells on it.	...	...	...	Inferred from the shells to be of Perim.
100	Equus.	Lower end of humerus with inner half of articulating surface broken off.	Do.	...	...	No mark.
101	Ruminantia	Lower end of right tibia with articulating surfaces entire (of size of Neel-gau nearly).				
102	Mastodon Perimensis.	Fragment comprising a portion of the horizontal ramus of the right lower jaw broken off vertically in front of the penultimate from molar, and behind at the commencement of the offset of the coronoid process, shewing the entire molar alveolus together with the hollow alveolus of another molar behind. The molar unluckily has the crown very much mutilated, but it distinctly shews the masses	Doubtful, but inferred to be Perim Island. An Ava ?	...	Unknown.	No mark or information as to its history. It is much to be regretted that no record has been kept of the history of this specimen, or where it came from. [After having gone

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
P 192	Antelope ?	Seventh cervical vertebra, body and articular surfaces quite entire: neural arch broken off. Part of the superior and inferior transverse processes remaining, no vertebrary foramen ; agrees very closely in relative size with the specimen No. 192, possibly contiguous vertebræ of the same animal.	Perim Is.	...	Unknown.	Perim matrix, no mark, from one of J. Prinsep's wall cases.
193	Rhinoceros.	Broken and mutilated portion of a molar.	Do.	...	Do.	Perim matrix, no mark.
194	?	Fragment of a cylindrical bone somewhat flattened above, but articular head broken off. A femur of crocodile ?	Perim Is. ?	...	...	Of doubtful origin.
195	...	Lower end of a mutilated femur, one condyle broken off, and otherwise disguised by matrix.	Do.	...	...	No mark or No. on Bera ?
196	Leptorhynchus.	Small fragment of the jaw of one side, containing the alveoli of 5 teeth ; otherwise much mutilated.	Do.	...	...	No mark or number.
197	Crocodilus.	A mutilated and very much weathered fragment of the cranium, shewing the upper and lower jaws locked together, from in front of the orbits on to the extremity of the alveolar border. The surface of	Perim Is. ? or Ava ?	...	Do.	No mark or indication of its origin. The specimen is black and the matrix unlike any other of

No.	*Genus and Species.*	*Description of Specimen.*	*Where from.*	*Reference to history.*	*Donor.*	*Remarks.*
N/1	Elephas Subg. Stegodon. St. insignis.	Lower jaw, left side, comprising the anterior portion of the horizontal ramus, truncated in front of the symphysis, containing six ridges of a molar tooth, the 3 anterior of which are worn, the rest intact; broken off behind near the commencement of the ascending ramus; covered over with soft sandy matrix.	Beltary Ghat Nerbudda.	J. A. S. XIX. 489, being in the Proceedings dated July, 1849, but not printed till July, 1850, with the Proceedings of that date.	Dr. Spilsbury.	This specimen is in the usual mineral condition of the Nerbudda fossils as contrasted with those from Ava and the Sewalik Hills, viz.: being white, soft and friable and adhering to the tongue, there being no ferruginous or calcareous infiltration. Of great importance, as being the only specimen of this Sewalik Stegodon from the Nerbudda in the A. Society's collection.
2	Elephas nomadicus.	Specimen comprising the facial part of the head, and a portion of the cranium with 2 molar teeth in the maxillaries on each side, the chevron mutilated from the	Housingabad Nerbudda.	J. A. S. X. 620, with 2 pls. of figs. 1841.	Do.	Mineral condition as in No. 1. *Remark.*—The whole of the upper part

No.	Genus and Species.	Description of Specimen.	Where from.	Reference to history.	Donor.	Remarks.
S C						
1	Mastodon latidens	Fragment of large upper (?) molar comprising two ridges, little touched by wear. The only complete furrow present is transverse without interruption as in the Ava specimens. The longitudinal bisecting cleft is very distinct. The weathered appearance is peculiar, differing from any thing else in the collection. The teeth appear to have been imbedded in a yellowish clay.	Sehwan on the north side of the Jukkeo Hills.	Proceedings J. A. S. Vol. p.	Dr. Young through Dr. Spilsbury.	Found in a low range of sandstone breccia composed of angular pieces of nummulitic limestone cemented with clay.
2	Do.	Third milk molar, lower jaw, left side (?) shewing the posterior two and a half ridges and the "heel" all well worn. The two last ridges are supported on a large fang. The anterior with the whole of the first and half of the second ridge are broken off. The valleys are transverse without interruption, vide Perim Island specimen No. 103.	Do.	Do.	Do.	Do.
3	Do.	Portion of a second milk molar shewing two ridges and a low talon ridge supported on one fang. The valley very open.	Do.	Do.	Do.	Do.

4	Mastodon ? or Elephas.	Middle metacarpal left fore leg a little mutilated at both ends, measuring 8½ in. long and 3,4 vertical in diameter of distal articulation. The specimen is as clear of matrix as a recent bone, but very brittle, although mineralized.	Sehwan.	Proceedings J. A. S. Vol. p.	Dr. Young.	
5	Rhinoceros ?	Inner metacarpal left fore leg, a little mutilated at the upper articulation. It is proportionally very short and the upper articulation deep as compared with the Indian unicorned rhinoceros.	Do.	Do.	Do.	
6	Rhinoceros.	Fragment of the left scapula of a very large species, shewing the greater portion of the glenoid cavity, neck and a part of the spine: the greater part of the blade broken off. The lower margin of the glenoid cavity partly broken off. Tuberosity of very large size.	Do.	Do.	Do.	
7	Crocodilus.	A very large lumbar vertebra, anterior articular surface abraded.	Do.	Do.	Do.	
8	Rhinoceros.	Distal extremity middle metatarsal, of large size, shaft broken off.	Do.	Do.	Do.	
9	Mastodon.	Small fragment of tip of an incisor tusk shewing engine-turned section.	Do.	Do.	Do.	
10	Rhinoceros.	Fragment of left scapula of a small sized rhinoceros: shewing glenoid cavity, neck and trochanter, blade broken off. Of a much smaller size than No. 6.	Do.	Do.	Do.	

18	Do.	A caudal do. do.				
19	?	Mutilated fragment undetermined.				
20 to 23	...	Fragments of ribs undetermined.				
24	Rhinoceros.	Portion of the small scapula No. 10.				
25	...	Mutilated fragment undetermined.	Do.	Do.	Do.	
26 27	...	Mutilated fragments of lower jaw of mastodon (?) containing the fangs only.				
28 29	Ostræa ?	Two specimens, each an entire valve.				
30	Ruminant.	A detached upper molar of a bovine ruminant.				