I.—Description by Messrs. Baker and Durand of the Fossil RHINOCEROS OF THE SEWALIK HILLS.

(Reprinted from the Journal of the Asiatic Society for August, 1836.1)

Cranium.—We shall commence with the fossil which, being the most perfect, affords the best means of instituting a comparison with the

skulls of described species.

The fossil cranium is imperfect in the following parts. The extremity of the nasal and intermaxillary bones is broken off; the zygomatic arches are both fractured; the left occipital condyle is wanting; the following molars have either dropped out prior to the envelopment of the head by the matrix, or have been broken off subsequently to its fossilization, viz. the fifth of the right, the first and seventh of the left, maxilla. In addition to these losses, the cranium has undergone, when in the stratum, the common fate of Sub-Himalayan relics, and is cracked in several directions; the crush, however, which produced these cracks has not materially altered the form of the head; the chief effect produced has been the forcing the left half of palate at its anterior extremity a little above its proper level; this the longitudinal crack passing through the left orbit enabled it to accomplish; the displacement resulting may be best observed in the profile view of the The transverse cracks are accompanied by a small skull, fig. 3. hollow and a consequent neighbouring bulge, both so partial and of such small relief, that in the profile their places can only be observed by paying attention to the jagged outline at the depression of the frontals. With the above exceptions the specimen is perfect.

A glance at Pl. XV. will be sufficient at once to determine the species with which this fossil rhinoceros must be compared. The depression of the frontals causing the deeply curved outline of the upper planes of the head, the slope of the occiput, the septum, and the nasal arch all separate this cranium from the existing and fossil bicorn species. existing unicorn species is that, therefore, to which recourse must be

had in order to establish a comparison.

In the unicorn rhinoceros of Java the height to which the crest of the occiput rises above the palatal plane, and also the thickness and prominence of the nasal arch supporting the horn, are less than in the Indian rhinoceros. A line drawn at a tangent to the crest of the occiput and the highest point of the nasal bones will, in the unicorn species of India, be more raised above the plane of the frontals than is the case in the Javanese rhinoceros. In the foregoing respects the fossil associates itself with the Indian, and differs from the Java, species. The comparison may, therefore, in general be confined to the former.

With the view of bringing at once under the eye, the discordance which occurs between the relative values of analogous dimensions, the subjoined table is here inserted. The modulus chosen is the space occupied by the seven molars, because on this measurement the development of the bones of the head must, to a certain extent, be dependent. The measurements given in Cuvier's 'Oss. Foss.' have afforded the proportions of the existing species; and the table of dimensions which closes this paper has given the proportions of the fossil.

¹ The illustrations referred to are those in the 'Journ. Asiatic Society.'-[ED.]

Measurement	Cuvier's Ind. Rhin.	Fossil Ind. Rhin	
Space occupied by the seven molars assumed equal t Height of occiput from lowest edge of occipital fora	to	1.00	1.00
summit of crest of occiput		1.02	0.80
Greatest breadth of occiput		1.11	1.05
Least thickness of cranium across temporals .		0.45	0.38
Breadth across at post-orbital apophysis of frontals		0.83	0.78
Distance from anterior of orbit to auditory foramen		1.02	1.00
Breadth across the occipital condyles		0.47	0.60

Referring to the table of dimensions it will be observed, that the height of the occiput is in the fossil less by met. 0.021 than the corresponding measure of Cuvier's Indian rhinoceros; but the greatest breadth of the occiput is met. 0.036 in favour of the fossil; relatively to the space occupied by the seven molars, these two measurements attain a less development in the fossil than in the existing animal. The difference in the occipital condyles amounting to met. 0.065 in excess of the Indian rhinoceros causes a marked discordance in the ratios of these dimensions; but, as the left condyle and the adjacent parts are wanting in the fossil, the measure was obtained by doubling what appeared to be the exact half dimension; this of course is not so satisfactory as if the condyles had been perfect; any inaccuracy consequent on this circumstance could not, however, amount to a quantity which would materially alter the deduced proportion. The occiput, figs. 8, 9, Pl. XVII., is fortunately very perfect; from its dimensions, which prove it to have belonged to a smaller animal than the cranium of Pl. XV., it may also be concluded, that though inferior in size to Cuvier's specimen of the Indian rhinoceros, which in greatest breadth of occiput exceeds it by met. 0.039, yet the space occupied by the condyles is 0.010 in favour of the small fossil occiput. In both of the fossils the depressions near the summits of the occiputs on each side of the mesial projections are deeper than those of the existing species.

The zygomatic arches not being entire, and the matrix being uncleared from the portions which remain, no particular remarks can

be passed on them.

The sutures cannot anywhere be traced; a circumstance which precludes the notice of particulars frequently of importance in the comparison of species.

The least thickness of the cranium is but met. 0.001 greater than that of the Indian rhinoceros; and therefore in proportion to the

modulus, yields a less ratio than that species.

The breadth at the orbits is met. 0.024 greater than in the existing species; consequently the skull does not in this part present any

material discordance of proportion.

The length between the auditory foramen and the anterior of the orbit is 0.043 met. greater in the fossil; this measurement affords a proportion only differing met. 0.002 from that obtained from the existing species.

The infra-orbital foramen is situated similarly to that of the Indian

rhinoceros.

The nasal arch is massive and much developed; the spring of this arch is perpendicularly over the anterior of the second molar; that is a little more retired than in the Java or Indian rhinoceros skulls, given

in Cuvier's Pl. IV.

The breadth of the palate has not been given in the table of dimensions, because the first and seventh molars not being perfect on both sides, measurements corresponding to those of Cuvier's could not be obtained. It is comparatively less than in the existing species, but the

great breadth of the teeth compensates for this difference.

Having detailed the essential differences and the points of resemblance observable in the fossil Indian rhinoceros when compared with Cuvier's dimensions of the existing Indian rhinoceros, we must be permitted to add, that additional measurements from skulls of the latter species are requisite before anything certain can be pronounced as to the amount of difference or correspondence between the two species. We are induced to make this remark in consequence of having been favoured with the examination of two craniums which presented considerable variation of proportions when compared with Cuvier's and with each other.

It appears to us desirable, therefore, to ascertain the limits within which individual variations range before anything positive can be asserted. The foregoing remarks will have shown a great general resemblance, accompanied by a departure of proportions in some corresponding parts; the latter may be sufficient for the establishment of a new species—at least for the present, until more data are obtainable whence to determine the bounds by which the individuals of one species are limited in their variations. For the sake of distinction, therefore, and present convenience, at the same time keeping in view the type to which it is a near approach, we have termed the species under consideration the R. Indicus fossilis.

Teeth.—The remark has been already passed, that the greater number of fossils obtained from the Moginund deposit are the remains of young animals; with the rhinoceros this has been particularly the case. We accordingly find ourselves better able to illustrate the early stage

of dentition than that more advanced.

Fig. 1 contains the four milk molars of the left maxilla; the fourth being but just cut is unworn; but the palate being broken away from the base of the tooth, more of it is seen than would otherwise be the case; in the right half of the specimen, where the palate is whole, the fourth molar is more concealed. The first molar is also unworn, but the second and third have suffered detrition. The two rows of teeth have their internal base lines parallel to each other, and the lines which would circumscribe their exterior much curved, in consequence of the difference of breadth which exists amongst the teeth. The upper part of an unworn tooth, measured exteriorly, is much longer than the lower; for the anterior of each molar projects beyond the posterior extremity of the one immediately in its front by the gradual enlargement of the external line of enamel from the base to the summit. As the molars wear down, this outer development is reduced, the internal sides of the teeth come more into use, and breadth is gained in compensation for the diminished length of surface in wear.

Fig. 5, Pl. XIX. The sixth molar from a left maxilla. The spur, which occupies no inconsiderable part of the hollow between the anterior and posterior transverse hillocks, is here less curved than that of the Indian rhinoceros; and there is wanting altogether the small salient of enamel, which in the Indian rhinoceros occurs between the starting point of the above-mentioned spur and the point of junction of the exterior and anterior main lines of enamel. It may also be mentioned, that the exterior and posterior lines of enamel being less thick than the corresponding parts of the sixth molar of the Indian rhinoceros, there is a greater space between the two. Such modifications of form are however fortuitous, differences of equal amount being observable in the teeth of animals of the same existing species.

This fossil measures in length . . in. 2·50 met. 0·0645 met. 0·0675

Fig. 6. The 5th molar, derived from a left maxilla. The outline of its enamel accords with that of the similar tooth of the Indian rhinoceros, the only difference being in the dimensions and in the emamelated edge of the short beading at the anterior side of the tooth.

It measures in length . . . in. 2·08 met. 0·053 , in breadth . . . , 3·27 , 0·0835

Fig. 7 is the 7th molar, and from a right maxilla; the point of the small spur is broken, as also the anterior extremity of the external line of enamel; but the tooth is sufficiently perfect to show a close resemblance to the analogous molar of the Indian rhinoceros.

It measures in length . . . in. 2.88 met. 0.0735 , in breadth . . . , 2.53 , 0.065

Fig. 8 is the 7th molar of a left maxilla. The difference observable between this and the foregoing specimen consists in the great development which the small anterior spur here attains. In the former, it is scarcely observable; in fig. 8 it is very prominent. Variations to an equal amount may, however, be observed in the minor salients, &c., of enamel in teeth appertaining to skulls of the same existing species. No weight can therefore be attached to such unimportant modifications.

The cranium Pl. XV. has its molar teeth so much worn down that the configurations of the enamel cannot be traced. The table of dimensions gives the length and breadth of each tooth, and shows that although the lengths do not materially differ from those of the corresponding teeth of the existing species, the breadths exceed those of any hitherto

Without complete illustrations of the milk-teeth of existing species, it would be dangerous to attempt a comparison between them and the fossil Indian rhinoceros. We have therefore avoided the endeavour; but we must be allowed to notice the upper jaw fig. 4, Pl. XIX., which offers peculiarities when compared with figs. 1, 2, and 3 (of the same plate), deserving of remark.

The right half of the specimen is figured in the plate, the left half having lost the first tooth. With respect to age, this jaw nearly corresponds with fig. 3, the fifth molar being in both on the point of appearance. The following departures from the tracing of enamel in figs. 1, 2, and 3, may, however, be observed. The second molar of

fig. 4 has this peculiarity, that instead of the anterior portion of the tooth being one continuous offset from the exterior line of enamel, it only assumes that appearance after considerable detrition, consisting at first of a short offset and an isolated pillar, as shown in the drawing. The two sides of the jaw have been very unequally worn, in consequence of which the opposite side to that delineated has the pillar and offset conjoined. The third molar also presents a marked difference when placed in juxtaposition with the corresponding teeth of the other three jaws: the two spurs which occupy the central hollow of the tooth are of a different shape from that which occurs in the other specimens. In other respects, fig. 4 corresponds with them: its rows of molars are parallel to each other, and the dimensions offer but trifling variations. The modifications of form above alluded to, unless fortuitous, which is perhaps improbable, denote the existence of another species-a fact corroborated by the examination of the milk molars of the lower jaws in our possession. Upon the consideration of these we now enter, but are able to offer but few and unsatisfactory

Lower Jaws.—With the exception of the fine fragment, fig. 6, Pl. XVI., submitted to our inspection by Conductor Dawe, and the fragment, fig. 9, the specimens of lower jaws are all from the Maginnud deposit,

and all the remains of young animals.

Fig. 1, Pl. XVI., represents a fossil which has lost the interior of its symphysis, the second molar on the right, and the first molar on the left side of the jaw, as also both the rami, which are broken off. Four molars have appeared, the second and third of which are worn; but the first and fourth have their enamel intact. The sections of fracture expose germ teeth. The two lines of molars have a gentle convergence, which is effected, not by a curve in the rows of teeth, for these are set in a perfectly straight line, but by the gradual approach of the two rows, which make a small angle with the median line of the jaw. The section shown by the break of the symphysis and the interval between the front molars argues the existence of a prolonged symphysis. The fourth molar is characteristic, having an isolated point or low pillar in the centre of the chord of its posterior crescent.

Fig. 4 is the right half of the lower jaw of a young rhinoceros, but of one somewhat older than the animal to which fig. 1 belonged, for the fourth molar has in fig. 4 suffered detrition. Notwithstanding the difference of age being in the favour of this specimen, the space occupied by the four molars is less than that of the four in fig. 1. The fourth molar is here devoid of the low isolated pillar in the posterior crescent, and has the central enamel, or junction of the two crescents, larger than in fig. 1. There are no means of ascertaining whether or not the opposite rows of molars were parallel, but in the position of symphysis and set of the teeth in a perfectly straight line,

this specimen corresponds with the foregoing.

Fig. 2 has its fourth molar just disclosed, and rising into the line of molars. It is devoid of the isolated pillar; but in size corresponds with fig. 1, instead of fig. 3, to which latter it assimilates itself by the fourth and second molars.

It is difficult to ascertain the degree of importance to be attached to such points of difference. In no specimen from the jaw of an adult

animal has any trace of the isolated pillar been hitherto found. Occurring as this peculiarity does in a deciduous tooth, should nothing similar take place in the permanent tooth which replaces it, the only chance of determining the question will be the discovery of an entire head. We have noticed an upper jaw, fig. 4, Pl. XIX., which indicates the probability of the existence of two species. The examination of the above lower jaws rather confirms this supposition; but in the event of such slight modifications denoting specific distinctions, we are unable, in consequence of the paucity and incompleteness of specimens, to decide which are the milk-teeth of the fossil Indian rhinoceros. Nor are we fortunate with respect to the lower maxilla of the adult animal; figs. 6, 7, and figs. 8, 9, being all that we can bring forward. The sections of these two fragments differ, in consequence of their being derived, one from the posterior, the other from the anterior part of the jaw, which thickens as it approaches to the symphysis. These two specimens resemble the corresponding portions of the lower jaw of the Indian rhinoceros, but are too imperfect to afford any satisfactory measurements for grounds of comparison.

Anterior Extremity.

A scapula in our possession is not sufficiently perfect to give accurate measurements, but it bears as great a general resemblance to that of the Indian rhinoceros as do the other parts of the skeleton.

The humerus, figs. 1, 2, Pl. XVII., having its radius and ulna attached, was discovered by ourselves very close to the place whence we excavated the femur and tibia forming the subject of Pl. XVIII. With the exception of the deltoid crest, this humerus is perfect, and has afforded the dimensions which enter into the first column of the table. For the purpose of comparison, the five following columns are added. The proportions of the Indian and Sumatra small species of rhinoceros are deduced from Cuvier's table; those of the fossil specimens are of course from the Table of Dimensions. The length of the bone is assumed as the unit, and the measures of other parts referred to it, in order to obtain their comparative values.

Measurements	Cuvier's Ind. Rhin.	Cuvier's Sumatra Small Sp. Rhin.	Fig. 1, Pl. 17, fossil Ind. Rhin.	17, fossil	17, fossil
Length of humerus from tuberosity to external condyle Ditto ditto ditto internal ditto Greatest anter. post. diameter at top Breadth across condyles Ditto of articulating pulley Least diam. of the body of the	1·00 1·03 0·44 0·36 0·25	1:00 0:95 0:30 0:31 0:19	1·00 0·91 0·35 0·22	1·00 0·94 0·44 0·37 0·22	1·00 0·43 0·25
humerus Length of radius Breadth at top Ditto at bottom Length from articulating head to bottom of internal con- dyle	0·15 0·79 0·26 0·25	0·13 0·75 0·20 0·18	0·14 0·76 0·23 0·23	0:81	0.15

The Sumatra rhinoceros (small species) concurs with the fossil Indian rhinoceros in having the length taken to the external condyle longer than that taken to the internal. The Javanese and the larger Sumatra species also accord with the fossil in this respect, but not so nearly as the small Sumatra species, which has consequently been intro-

duced into the above table.

The length of the fossil humerus, figs. 1, 2, Pl. XVII., exceeds that of any of the existing species: its thickness is, in proportion to the length of the bone, intermediate between the Sumatra and Indian species. The articulating pulley also possesses a development intermediate in value to those of the two existing species. The breadth at the condyles is in the same proportion, or nearly so, as that of the Indian rhinoceros. The radius is in length, considered with reference to length of femur, a little less than in the Indian, and somewhat in excess of the small Sumatra species. The remaining two dimensions of this bone yield values intermediate to those of the two existing rhinoceroses. These remarks apply to the deductions for fig. 1; nor would it be necessary much to alter them in speaking of fig. 5; but fig. 6 presents such a close approximation to the Indian rhinoceros, that it is much to be wished that the specimen had not been so broken as to prevent additional measurements being derived from it. Excepting in the length from the articulating head to the bottom of the internal condyle, it does not much differ from fig. 5. The bone, however, being imperfect, must be omitted in drawing a comparison between the fossil and existing

Fig. 1 varies most from the Indian rhinoceros in the proportion of the length taken to the internal condyle—an anomaly difficult of explanation. We must here repeat, that there exists a necessity for a greater number of tables of dimensions taken from the skeletons of the Indian rhinoceros. The anterior extremity of a rhinoceros, with the examination of which we have been favoured, yielded proportions so nearly corresponding with those deduced from the fossil humerus, figs. 1, 2, as to prevent our drawing more positive conclusions than those ex-

pressed at the close of the remarks on the cranium, Pl. XV.

Posterior Extremity.

The femur and tibia, Pl. XVIII., were dug up in such close proximity to the humerus and radius, fig. 1, Pl. XVII., that little doubt could be entertained of their having belonged to the same animal. Being perfect, except at the lower part of the great trochanter, the specimen affords ample means of comparison with the femur of the existing species.

On reverting to the Table of Dimensions, it will be observed that this fossil exceeds, as did also the humerus, any of those in Cuvier's table of existing species. The following columns show in what respects the proportions of the bone vary from those deduced from Cuvier's Indian

rhinoceros. The length of the femur is here the modulus.

From a comparison of the two first columns in the annexed table there results that the fossil has a greater development at its upper, and a somewhat less development at its lower extremity, than is the case in the Indian rhinoceros. The third trochanter is set lower down, and the inferior extremity of the small trochanter higher up than in the existing

species; the articulating head is larger in proportion in the fossil than in the Indian rhinoceros. None of these modifications, however, are excessive; on the contrary, they are less than those which exist amongst the fossils themselves, which are all three undoubtedly of the same species.

Measurements	Cuvier's Ind. Rhin.	Fossil Pl. 18	in table of	Fossil 5th in table of dimensions
Length of femur from articulating head to bottom of internal condyle. Breath from head to most salient part	1.00	1.00	1.00	1.00
of great trochanter	0.38	0.43		
Dreadin across condvies	0.29	0.28	0.26	
Allero-bost diam of internal condula	0.34	0.34	0 20	
Ditto ditto of external ditto.	0.27	0.26		•••
Ditto ditto of external ditto. Distance between bottom of 3rd tro-		0 20		
chanter and top of 1st	0.59	0.61		
Ditto ditto small trochanter and			1000	***
top of head of femur.	0.46	0.41	0.46	0.42
Diam, of articulating head of femura	0.18	0.19	0.16	0.17
From lower side 3rd trochanter to bot			0.10	011
tom of external condyle		0.38	0.38	
Tongui Ul leinily from artiquisting bood				
to bottom of 3rd trochanter		0.72	0.71	0.64
Length of tibia from anter. tubero. to			100	001
anter. edge of inferior articulating				
	0.67	0.70		
	0.25	0.25		
Antero-post. diam. from antero-post.				
tubero. to post. ext. of internal con-		45.00		
dyle. Transverse diam. at bottom. Diam. anteropost. ext. of internal con-	0.29	0.31		
Diam antere part	0.21	0.20	•	
Diam. antero-post. of internal side	0.14	0.13		
Length of fibula . Breadth at bottom	0.62	0.65		
	0.10	0.10		

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From the manner in which the lower and exterior part of the great trochanter is broken there is every probability that a descending point protruded from the fractured surface towards the third trochanter, the ascending point of which is very perfect.

The third trochanter, however, differs from that of the existing species as figured in Cuvier's 'Oss. Foss.,' in not possessing the double point; for it has a single well-defined ascending process, without any sign of the bicuspid termination. The lower edge of this trochanter, instead of ascending with a gradual swell towards the point, as in the existing species, has a counter curvature to that of the upper edge. The chief dissimilarity between Cuvier's plate and the fossil occurs in this part of the bone, the third trochanter assuming a different shape, and offering a variation more distinctive than any other presented in either extremity. This circumstance, together with some of the proportions of the cranium, has led us for the present to distinguish these remains by appending the word fossil to the name of that species of which they are the prototype. But we dwell on the necessity of more

extended research, and the collection of a greater series of tables of dimensions of the Indian rhinoceros, before anything absolutely conclusive can be pronounced with regard to the fossil and existing

species.

We have had no hesitation in ascribing the two limbs dug up in such close neighbourhood to the same animal. An additional confirmation of the correctness of the assumption may be derived from the proportion which exists between these two extremities, when compared with that which occurs in the Indian rhinoceros.

Ind. Rhin. femur and tibia mèt. 0.960 humerus and radius mèt. 0.868 Fossil Ind. Rhin. do. do. " 1.056 ditto ditto " 0.947

In the first, the humerus and radius are to the femur and tibia in the

ratio of 1:1.10; in the fossil, the ratio is 1:1.11.

The analogy which exists between these fossil extremities and those of the Indian rhinoceros being no less striking than that which was observed between the cranium, Pl. XV., and the skull of the existing species, we have considered such correspondence sufficient to prove that the fossil anterior and posterior limbs appertained to an animal of the same species, and of about similar size to the one of which the cranium in question is a relic.

Even in the event of a much closer approximation of symmetrical proportions than that given in this paper being obtained, we are aware that identity of species could not be presumed. It could not be assumed that the skin and the external appearance of the animal were precisely similar to those of the existing species. The fossil Indian rhinoceros must, however, have presented a figure bearing a strong general resemblance to the uncouth symmetry of its present repre-

sentative.

Measurements of Anterior	Sp. 1		Sp. 2		Sp. 3		Sp. 4		Sp. 5	
Extremity.	Mèt.	In.	Mèt.	In.	Mèt.	In.	Mèt.	In.	Mèt.	In.
	90 1		-	i ali	Eq.	arrai.	811	To Cal		
Length of humerus	-118		1		34	AL I	111			
from tub. to exter-	.520	21.20	.188	19.99	.482	19:0				
nal condyle		19.38								
Do. do. do. internal do	492	19.90	401	10 10						
Greatest anter. post.			.010	0,00	.000	9.20	.200	7.90	-	
diam. at top			218	0.00	200	0 20	200	100		
Breadth across con-	100	H.00	.100	7.00		•••			.176	6.94
dyles	.193	7.60	.183	7.22		•••			110	0
Breadth of the articu-	.110	1.00		4.40	.101	4.00	.104	4.10	.109	4.30
lating pulley	.119	4.70	.111	4.40	-121	4.00	104	410	100	
Least diam. of the body	0=0	0.00	1		070	0.00	.071	0.00	.069	2.75
of the humerus .					.073					
Length of the radius.						***				
Breadth at top	124	4.90								100
Ditto at bottom	124	4.90				•••				
Length of humerus	HE	- 1	7000	THE STATE OF THE S			-		13 19	1
from art. head to			100	1 3	1		Dien !		000	1 5.77
internal condyle .	.441	17.40	.393	15.21	.420	16.55	.389	15.35	.398	19.4

Measurements of Posterior Extremity	Si	Sp. 1	τΩ.	Sp. 2	TS:	Sp. 3	SZ	Sp. 4	ξ <u>ς</u>	Sp. 5	Sp.	9.
	Mèt.	In.	Mèt.	In.	Mèt.	In.	Met.	In.	Mèt.	In.	Mèt.	In:
Length of femur from ant. head to bottom of 3rd tro-												
	.449	17.70	:	:	.383	15.10	:	:	.328	12.94	.369	14.56
	.621	24.45	:	:	.539	21.25	:	:	.510	20.10	:	:
	-269	10.60	:	:		:	:	:	:	:	:	::
	.173	6.85	:	:	.143	5.63	.146	5.75	:	:	:	:
condyle	214	8.45	.221	8.70	:	:	.166	6.55		:	:	:
_	191	6.35	.162	6.40	:		.139	5.48	::	::	:	:
Distance between bottom of 3rd trochanter and top of 1st Distance between bottom of small trochanter and top of	.383	15.10	:	:	:	:	:	:	:	:	:	:
	.259	10.50	:	:	.249	08.6	:	:	.215	8.50	.231	9.10
Diam. of articular head of femur. From lower side 3rd troohanter to hottom of external	.118	4.65	:	:	980.	3.40	:	:	680.	3.50	.083	3.30
	-242	9.53	.177	2.00	-208	8.20	.266	10.50	:	:	:	;
artic. surface	.435	17.15										
Greatest transverse diam, at top	991.	6.15			: :	: :	: :	: :		: :	: :	: :
Antero-post, diam, from anter. tub. to post, ext. of inter-												
	.195	7.70	:	:	:	:	:	:	:	:	:	:
	.128	20.9	:	:	:	:	:	:	:	:	:	:
st. internal side	980	3.40	:	:	:	:	:	::	:	:	:	::
	405	15.95	:	.:	:	:	:	:	:	:	:	:
Breadth at bottom	100	2.54									- 1	

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	Cran	ium	Occi	put
Measurements of the Head	Mèt.	In.	Mèt.	In.
Height of occiput from lowest edge of occipital foramen to top of crest	0.259	10.20	0.223	8.78
foramen	0.341	13.44	0.266	10.50
Least thickness of cranium at temporal bones. Breadth between post, orbital apophysis of fron-	0.126	4.95	•••	
tola 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.254	10.00		
Distance from anterior of orbit to auditory			B B IN	
foramen	0.325	12.80		
Space occupied by the seven molars Breadth across occipital condyles	0.324	12.75	0.140	5.51
Ditto of occipital foramen	0 130	110	0.0575	100 A 100 A 100
Height of ditto ditto			0.049	1.90
Distance between internal extremities of glenoid				7/10/2000
facets of temporal			0.0735	2.88
Ditto from lower edge of occipital foramen to median post. extremity of palate Ditto from post. of right occipital condyle to	0.368	14.50		
spring of nasal arch	0.239	21.22		
Ditto ditto ditto to anterior of orbit	0.449	17.71		
Depth from edge of maxilla at 5th molar to upper	0.239	0.40	1	1 3 1
surface of frontals	0.239	9.42		
Ditto external breadth at 6th molar	0.246	9.72		
Thickness of cranium over the median post. ex-	0 210	0 12		
	0.204	8.06		
tremity of palate			1	
terior of palate. Perpendicular from a line tangential to the sum-	0.238	9.38		
Perpendicular from a line tangential to the summit of crest and vertex of nasal arch to the de-	1		18	
pression of frontals	0.099	3.91		

Measurements of Upper Molars	1st S	Sp.	2nd	Sp.	3rd	Sp.	4th	Sp.	5th	Sp.
Opper Moiars	Mèt.	In.	Mèt.	In.	Mèt.	In.	Mèt.	In.	Mèt.	In.
Greatest length		1	1				7			
Molar 1			.030	1.19	.0295	1.14	.030	1.20		
2	.035	1.36	.034	1.335	.038	1.49	.0395	1.53	.039	1.49
3	.045	1.75	.0475	1.85	.053	2.07	.056	2.17	.045	1.74
4	.049	1.92	.058	2.26	.061	2.39			.056	2:20
5	.044	1.69	.061	2.37						
6	.0495	1.95								
7	.0755	2.96								
Greatest breadth							-			
Molar 1			.024	0.95	.024	0.95	.0285	1.09		
2	1059	2.31	.0385	1.5	.036	1.40	.041	1.58	.037	1.46
3	.080	3.12	.049	1.9	.045	1.88	.053	2.05	.051	2.00
4	.083	3.36	.0575	2.25					.059	2.30
5	.081	3.19								
6	.089	3.48								
7	.083	3.25		***						

Measurements of Lower Molars	Si	p. 1	Sp. 2		Sp. 3	
	Mèt.	In.	Mèt.	In.	Mèt.	In.
Greatest length of Molar	016	0.61			.017	0.67
	2 .037	1.44	.0335	1.30	.033	1.29
	053	2.09	.050	1.98	.0425	1.67
4	1 .047	1.82	.056	2.18	.046	1.79
						•••
(
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Greatest breadth of Molar					.0115	0.46
2		0.77	.021	0.81	.018	0.70
1	.026	1.01	.027	1.05	.025	0.98
4	.029	1.12	.029	1.10	.030	1.19
3						
6						
7						

II.—Description by Dr. Falconer of Fossil Remains of Rhinoceros in Museum of Asiatic Society of Bengal. Reprinted from Catalogue of Museum.

A. From the Sewalik Hills.

No. 269. Rhinoceros 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 shows 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 shows the rugous gibbosity of the base of a very large horn. The species was evidently unicorned. From the Sewalik hills near Nahun.

No. 270. Rhinoceros —— ?—Lower jaw, left side showing greater part of horizontal ramus, but broken off in front and behind, with the remains of four molars, the crowns all broken off.

No. 271. Rhinoceros —— ?—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.

No. 272. Rhinoceros ——?—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