

DESCRIPTION OF FOUR NEW SPECIES OF MALAYAN BATS, FROM THE
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[Received 3rd May, read 26th June, 1871.]

CYNOPTERUS BRACHYSOMA, Dobson.

Head broad, with prominent zygomatic arches, general shape triangular; muzzle pointed, deeply emarginate between the nostrils; ears moderate, conical, with rounded tips, not margined with white.

Body very short and thick, everywhere clothed with long, dense fur, of a peculiar slatey-blue colour, with a grayish or silvery tinge, the tips of the hairs sooty-brown. The fur of the back is continuous with that of the abdomen through the notch in the interfemoral membrane, and completely conceals the tail which is very short and slender. Upper surface of interfemoral membrane thickly covered with hair; beneath, the triangular portions on each side of the tail have a few scattered hairs only on their posterior margins. Above, the fur of the back extends upon the wing membrane as far as a line drawn between the elbow and knee joints, covering it with rather long hair, also upon the humerus, half the length of the forearm, the femur, and proximal end of the tibia; beneath, the antebrachial membrane is dusted over with a few, very short, fine hairs; the wing membrane is clothed to about the same extent as on the upper surface, but the hairs are very short, and thinly spread.

Dentition.—In. $\frac{4}{4}$; c. $\frac{1-1}{1-1}$; p.m. $\frac{2-2}{3-3}$; m. $\frac{2-2}{2-2}$.

The description of this new species is taken from an adult female specimen preserved in spirits.

	Inches.
Length, head and body	2.9
" tail,	0.25
" head,	1.25
" eye to tip of nostril,	0.4
" ear (anteriorly),	0.6
Breadth, ditto,	0.35
Length, forearm, ...	2.2
" second finger,	4.0
" fourth ditto,	3.0
" thumb,	0.9
" tibia,	0.8
" foot and claws,	0.5
" calcaneum,	0.2
Expanse,	14.0

Loc. Andaman Islands.

MACROGLOSSUS SPELÆUS, Dobson, pl. x, fig. 3—4.

Head long ; muzzle narrow ; nostrils with an intervening emargination which also passes down to the lip ; tongue very long and pointed ; ears conical with rounded tips.

Wings ample, from the sides of the hairy back ; wing-membrane attached to the back of the foot, and extending to the base of the outer toe ; thumb rather short, terminal phalanx longest, with its base included in the membrane ; index finger of two phalanges *without any trace of a claw*.

Body clothed with very short and thinly spread fur of a uniform dark brown colour. In front the fur of the head extends upon the face as far as the inner canthuses of the eyes, leaving the remaining portions naked ; from the back it passes on to the humerus and forearm, covering half the length of the latter ; behind, on each side, it covers a triangular portion of the interfemoral membrane, bounded laterally by the femur, and posteriorly by a line drawn from the knee joint to the base of the free portion of the tail ; beneath, the whole surface of the antebrachial membrane is covered with short hairs ; laterally, the fur of the sides extends upon the wing membrane as far as a line drawn between the elbow and knee joints, also outwards along the posterior margin of the forearm to the carpus, occupying a space varying in width from one inch behind the elbow to half an inch or less at the middle of the forearm ; the under surface of the humerus and femur, and half the length of the forearm are also hairy.

The tail is about half an inch in length, and rather thick, and contrasts remarkably with the diminutive member possessed by the only other known species of the genus, *M. minimus*.

On each side of, and a little behind the anal opening two small, subcutaneous, gland-like bodies are placed. These bodies are oval, have the skin tightly stretched over them, and are not covered by the fur which clothes the neighbouring parts. As the specimens from which the description of these bodies is taken are those of females, it is not known if they also occur in the males of this species.

The tongue is very long, pointed, and protrusible ; in the spirit

specimens it can be drawn from the mouth for nearly half an inch without using any forcible extension; the anterior half of its surface is thickly covered with soft, recurved papillæ, which increase in length towards the tip.

In the form, number, and arrangement of the teeth, the dentition corresponds precisely with that of *M. minimus*. As might be expected from the greater size of the animals of this species, the teeth are considerably larger than those of *M. minimus*, and but for this difference, it would be impossible to distinguish the lower jaws of the two species; in the upper jaw, however, the first premolar is minute, and relatively smaller, compared with the other teeth, than in *M. minimus*.

Dentition.—In. $\frac{4}{4}$; c. $\frac{1-1}{1-1}$; p.m. $\frac{2-2}{3-3}$; m. $\frac{3-3}{3-3}$.

	Inches.
Length, head and body,	4.2
„ tail,	0.45
„ head,	1.55
„ eye to tip of nostril,	0.6
„ ear (anteriorly),	0.75
Breadth, ditto,	0.4
Length, forearm,	2.75
„ second finger,	4.6
„ fourth ditto,	2.85
„ thumb,	0.7
„ tibia,	1.15
„ foot and claws,	0.7
„ calcaneum,	0.2
Expanse,	16.6

Loc. Farm Caves, near Moulmein, Tenasserim province.

PHYLLORHINA NICOBARENSIS, Dobson, pl. xx, fig. 2.

Head long, muzzle obtuse, thick; ears large, acutely pointed, outer margin slightly concave below the tip, conch marked with transverse striæ; no central pore behind the nose-leaf, but on either side above the eyes a wart-like eminence having on its summit the opening of two minute pores around which long straight hairs arise. Upper portion or crest of the transverse nose-leaf simple, forming an arc of a circle, folded or rolled back on itself and overhanging the concave base which is divided into *two cells only* by a single central longitudinal fold; in front, the horizontal, horse-shoe shaped membrane has three small points on its anterior margin.

Wings broad, wing-membrane attached to base of metacarpal bone of outer toe; feet slender, tail of six vertebræ, the last free.

The fur of the back extends upon the humerus and femur for about half their length, and to the same distance on the intervening wing-membrane; re-appearing at the elbow it passes outwards along the posterior edge of the forearm on the wing-membrane reaching half way to the carpus; beneath, the distribution of the fur upon the humerus, femur, and intervening wing-membrane is similar to that above, but the hairs are considerably longer.

The interfemoral membrane is naked above except at the root of the tail; beneath, the fur of the abdomen extends upon it as far as the end of the second vertebra.

Hair, tricoloured above, light brown at base, then grayish, with light brown tips; beneath, dirty-white.

Dentition.—In. $\frac{2}{4}$; c. $\frac{1-1}{1-1}$; p.m. $\frac{2-2}{2-2}$; m. $\frac{3-3}{3-3}$.

	Inches.
Length, head and body,.....	3·0
„ head,	1·1
„ tail,.....	1·7
„ ear (anteriorly),	0·9
Breadth, ditto,	0·8
Length, forearm,	2·6
„ second finger,	3·7
„ fourth ditto,	2·8
„ tibia,	1·0
„ foot and claws,	0·45
„ calcaneum,	0·6
Expanse,	14·8

Loc. Nicobar Islands.

ASELLIA STOLICZKANA, Dobson, pl. xx, fig. 1.

Muzzle obtuse; ears nearly as broad as long, with acutely pointed tips; inner margin convex, becoming slightly concave towards the tip; outer edge doubly emarginate immediately below the tip, then becoming very convex and almost meeting the inner margin at the base; the upper emargination is very small and shallow, and may be said to be formed by a slight projection on the side of the lower emargination, a very short distance below the tip.

Front edge of the horse-shoe portion of the nose-leaf raised, bent up in the middle, and separated from the lip by an underlying fold of membrane; on each side of the horse-shoe a double fold of membrane; upper transverse nose-leaf large, erect: upper portion, or crest, convex in front, overhanging the base which is concave, and divided into four shallow cells by three longitudinal folds; the form of the crest is that of an isosceles triangle with an obtuse vertical angle; the apex of this triangle is divided into three points by two narrow perpendicular incisions extending half way to the base, the extremities of which are attached to the membrane forming the horse-shoe by a vertical band on either side.

Behind the upper erect nose—leaf on either side, above the eyes, a wart-like prominence is placed, having on its summit the openings of two minute pores from around which long straight hairs arise.

Wings broad, wing membrane attached to lower part of ankles; thumb moderate; terminal phalanges of third and fourth fingers bifid at their extremities, each division nearly one-sixth of an inch in length, or longer than any observed by the writer in the largest Rhinolophine bats. Tail of six joints, last two vertebræ free.

The body is covered with long, silky fur; above bi-coloured, pure white at the base, and for two-thirds its length, the remaining portion purplish-brown; beneath dirty white throughout. Cutaneous system pure white.

On the upper surface the wings and interfemoral membranes are completely devoid of hair with the exception of a very narrow portion along the sides of the body and at the root of the tail on which the fur of the back extends; beneath, the wing membrane, as far as a line drawn from the elbow to the knee joint, is covered with short hairs, ranged along the parallel lines with which it is marked in this region; behind, the fur of the abdomen passes on to the interfemoral membrane, occupying about one-third of its surface.

The bones of the extremities are extremely slender and light, and the membranes so translucent, that letters of small type can be distinguished through them even when dry.

Teeth very small, and acutely pointed; upper canines with a small cusp at the base, both in front and behind.

Dentition.—In. $\frac{2}{4}$; c. $\frac{1-1}{1-1}$; p.m. $\frac{1-1}{2-2}$; m. $\frac{3-3}{3-3}$.

	Inches
Length, head and body,.....	1·6
„ tail,.....	1·2
„ head,	0·6
„ ear,	0·4
Breadth, ditto,... ..	0·35
Width, upper transverse nose-leaf,	0·3
Height, ditto ditto,	0·2
Length, forearm,.....	1·52
„ thumb,	0·2
„ second finger, ..	2·6
„ fourth ditto,	1·8
„ tibia,	0·68
„ foot and claws, ..	0·3
„ calcaneum,	0·3
Expanse,	9·0

Loc. Penang.

MINIOPTERIS AUSTRALIS, Tomes.

Mr. Tomes in describing this species writes—“The fur too of the under-parts encroaches somewhat on the membranes, whilst in *M. blepotis*, the latter are quite free from fur.”—As this appears to me the most important point of difference amongst those enumerated, I think it would have been well, if Mr. Tomes had shown to what extent the fur of the body encroaches on the membranes, as the expression “encroaches somewhat” is vague, there being very few of the *Vespertilionidæ*, (indeed, I have never seen any, except immature individuals,) in which the fur of the body does not extend to some degree, however limited, on the wing and interfemoral membranes. I think, therefore, an accurate description of the distribution of the fur, accompanied with detailed measurements of the three specimens, obtained by Dr. Stoliczka at the Nicobars, may not be out of place here, more especially as doubts may be entertained as to the identity of this species with that described by Mr. Tomes from its remarkable distribution, to which I have referred in the Proceedings, Asiatic Society of Bengal.*

The following is a description of the colour and distribution of the fur taken from one of the three specimens dried from spirit.

* May, 1871.

Above, uni-coloured, dark brown throughout; beneath, a lighter shade of same colour. The fur of the back extends upon the base of the interfemoral membrane as far as the end of the third caudal vertebra, densely at the root of the tail but quickly thinning out into a few scattered hairs at its termination; the femurs are thickly covered with hair for three-fourths their length, and a few short hairs appear on the backs of the toes; the head of the humerus only is covered, and laterally the extent of fur upon the wing-membrane is limited to a narrow portion along the sides of the body. Beneath, the distal two-thirds of the humerus is naked as above, but the wing membrane is covered as far as a line drawn from the middle of the humerus to the knee-joint, a narrow line of very fine short fur also extends from the elbow along the posterior margin of the forearm to the carpus; the femurs are densely covered with hair for their entire length, and the fur of the abdomen extends upon the interfemoral membrane for nearly the same distance as on the upper surface.

Of the four columns of measurements given below, Nos. 1, 2, and 3 are of three adult male specimens from the Nicobars, the fourth,—No. 1 *a*, is taken from the table of dimensions given by Mr. Tomes in the *Ann. and Mag. Nat. Hist.*, 1858, vol. II, p. 160, corresponding to No. 1 in that table, the lines being reduced to tenths of an inch.

The only differences of any account in the measurements are in those of the head and feet; the first is most probably due to the difficulty in obtaining a correct measurement of the skull when a skeleton of the specimen cannot be made, so that scarcely any two persons will give the same dimensions; the latter may be explained by supposing that Mr. Tomes, in measuring the feet took into account the curvature of the claws.

The similarity in measurement is very remarkable when we consider the great distance of the two localities — Australia and the Nicobar Islands — from each other, as we rarely find specimens of the same species from different parts of the same country agreeing so closely.

	1	2	3	1 a.
	inches.	in.	in.	in.
Length, head and body,.....	1·85	1·8	1·85	1·9
„ tail,	1·85	1·85	1·85	1·8
„ head,	0·6	0·63	0·6	0·66
„ ear *(anteriorly),	0·4	0·4	0·4	„
„ ear (posteriorly),	0·25	0·25	0·25	0·25
„ tragus,	0·2	0·2	0·2	0·2
„ forearm,.....	1·5	1·5	1·5	1·58
„ thumb,	0·25	0·22	0·2	„
„ metacarpal bone of 2nd finger,.	1·3	1·35	1·35	} 3·0
„ first phalanx, ditto ditto,	0·35	0·35	0·38	
„ second, ditto ditto,.....	1·3	1·35	1·3	
„ metacarpal bone of 3rd finger,	1·25	1·3	1·3	„
„ first phalanx, ditto ditto,	0·3	0·3	0·3	„
„ second, ditto ditto,	0·6	0·65	0·6	„
„ metacarpal bone of 4th finger, .	1·2	1·25	1·25	} 1·8
„ first phalanx, ditto ditto,	0·3	0·3	0·3	
„ second, ditto ditto,.....	0·3	0·3	0·3	
„ tibia,	0·6	0·6	0·6	0·58
„ calcaneum,.....	0·5	0·45	0·5	„
„ foot and claws,	0·3	0·32	0·32	0·39
Expanse,	11·7	11·8	11·6	11·6

* In measuring the ear I place one point of the compass at the tip, and the other at the termination of the outer margin of the ear, whether it terminates as in *Murina suillus* at the base of the tragus, or is carried forwards to the angle of the mouth, as in *Miniopterus Australis*. This I do for the sake of obtaining fixed points for measuring from in all cases, and also for the purpose of getting the actual diameter of the external ear.

The length of the head and body is obtained by measuring from the tip of the nose (the head being fully extended) to the posterior margin of the anus. For the purposes of comparison I have, in this case, determined the expanse of wings by Mr. Tomes's method which see under his description of *Miniopterus Australis*, *loc. cit.*

Explanation of plates.

Plate X.

Fig. 1. Head of *Vespertilio auratus*, see p. 186.

„ 1a, side view of upper and lower jaws, 1b, upper, and 1c, lower jaw, (all enlarged).

„ 2. Ear of *V. auratus*, (enlarged).

„ 3. Lower portion of body of *M. spelæus*, p. 261.

„ 4. Skull of ditto

„ 4a, 4b. Upper and lower jaws, of ditto.

Plate XX.

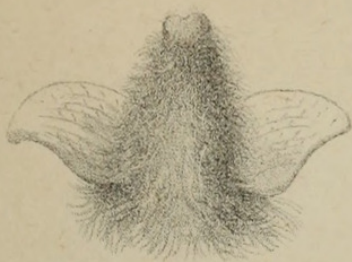
Fig. 1. Head of *Phyllorhina Nicobarensis*, p. 262.

„ 2. Upper portion of nose leaf turned backward showing cells beneath.

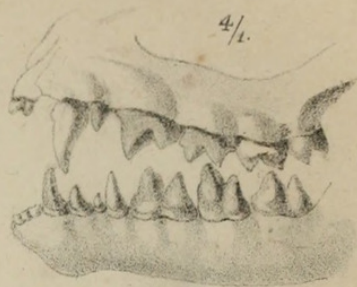
„ 3. *Asellia Stoliczka* (natural size), p. 263.

„ 4. ditto head, (enlarged).

„ 5. Concave base of upper transverse nose-leaf, showing the longitudinal folds and cells.



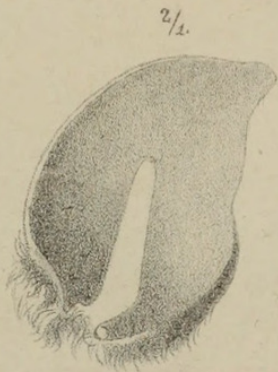
1.



1. a.



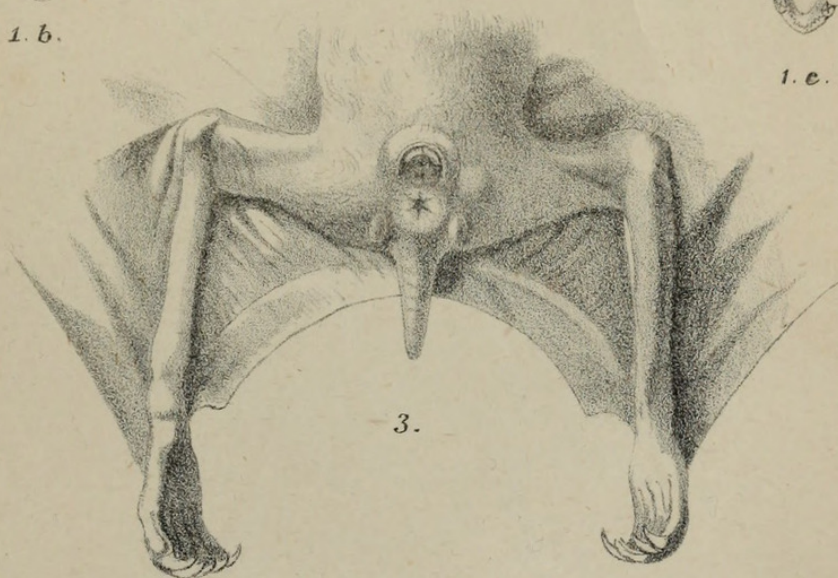
1. b.



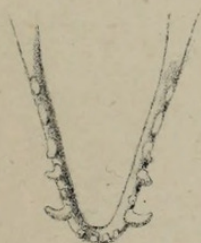
2.



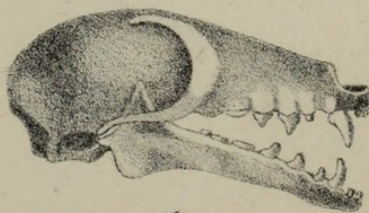
1. c.



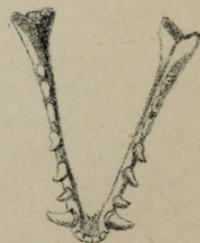
3.



4. b.



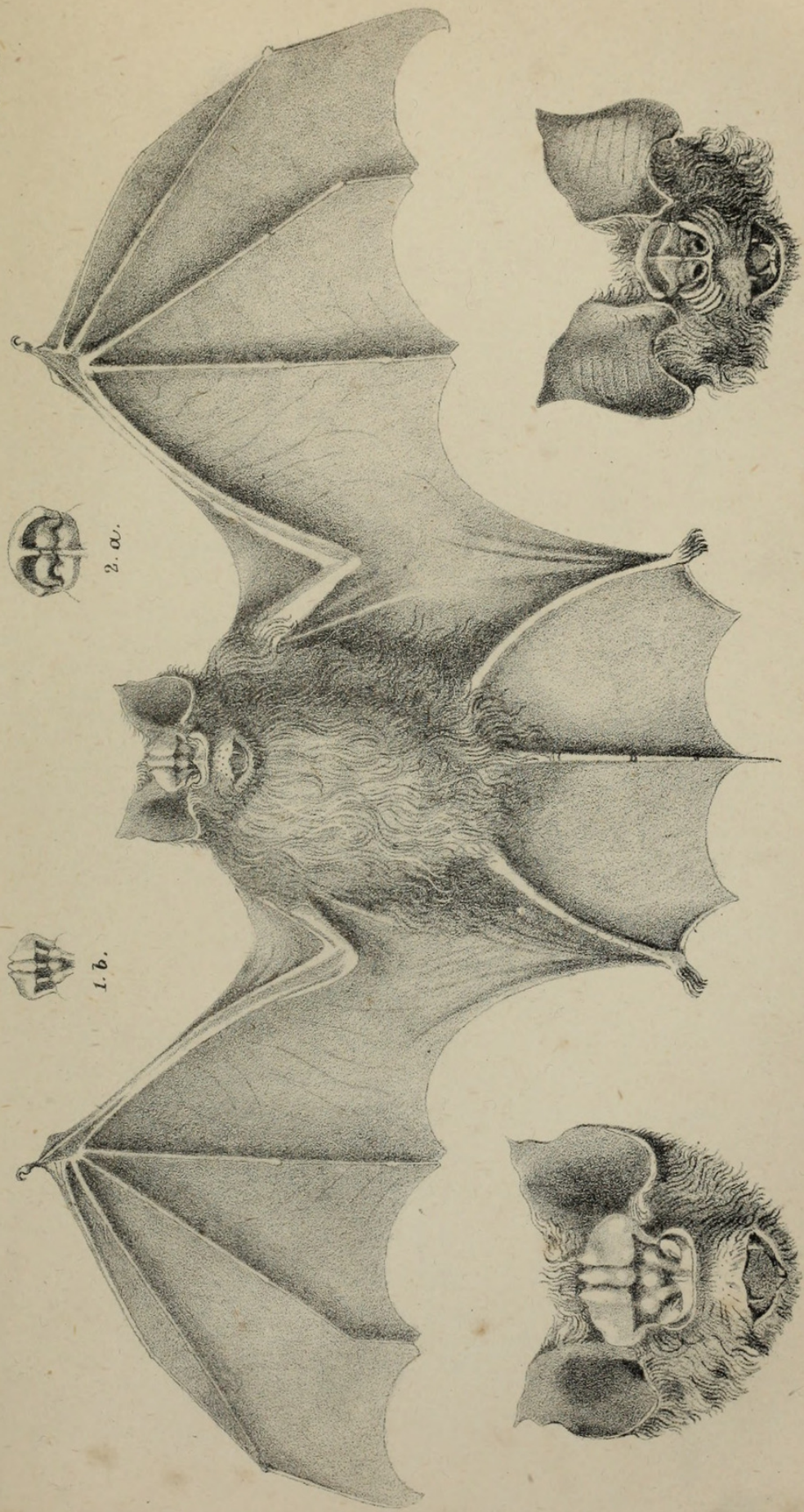
4.



4. a.

1-2. *Vespertilio auratus*, p. 186. & 267.

3-4. *Macroglossus spelæus*, p. 261. & 267.



1-1.a. 1.b. *Asellia Stoliczkanii*, p. 263. 2: 2.a. *Phyllorhina Nicobarensis*, p. 262.



Dobson, G. E. 1871. "Description of four new species of Malayan Bats, from the collection of Dr. Stoliczka." *The journal of the Asiatic Society of Bengal* 40, 260–267.

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