

XXI.—NOTES ON THE RATS OF DACCA,
EASTERN BENGAL

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I forward these notes to the Indian Museum as a small contribution to a subject of considerable importance at the present day.

During the month of April, 1907, an attempt was made to gauge the relative numbers of different species of rats in Dacca. During the investigation, 1,045 rats were examined and of these 1,041 were identified.

611 proved to be specimens of *Mus rattus*.

430 „ „ „ „ *Nesokia bengalensis*.

No other species of rat was found. Thus of the rat population of Dacca, it appears that about 59 per cent. are *Mus rattus* and 41 per cent. are *Nesokia bengalensis*.

These specimens were trapped in houses, "kutchha" (mud) and "pucca" (masonry), and in grain godowns and grocers' shops in various parts of the town.

Of those trapped in "pucca" houses	68	%	were	<i>M. rattus</i> .
	32	%	„	<i>N. bengalensis</i> .
„ „ „kutchha" „	57.7	%	„	<i>M. rattus</i> .
	42.3	%	„	<i>N. bengalensis</i> .
„ „ „grocers' shops	55.3	%	„	<i>M. rattus</i> .
	44.7	%	„	<i>N. bengalensis</i> .
„ „ „grain godowns	44.5	%	„	<i>M. rattus</i> .
	55.5	%	„	<i>N. bengalensis</i> .

Dacca is a city of over 90,000 inhabitants, with narrow streets, indifferent sanitation, a very imperfect system of surface drains, and only one short sewer. Many of the houses are "kutchha" throughout, and of the "pucca" houses many have earthen floors.

In all cases, measurements were taken in accordance with Hossack's instructions and the collection was divided into three series of about 350 specimens each. The first series is omitted from these observations as, presumably, the measurements (being those of a novice) are not so accurate as the later ones.

M. RATTUS.

It was found impossible to distinguish the varieties of *M. rattus* according to the descriptions extant. All sizes show colour variations and the only point on which one can dogmatise, is that *M. rattus*—the black rat—does not appear to be black in Dacca.

The following table shows the variations in size and the proportionate measurements of *M. rattus* as found in Dacca. Judging by the breast development in female specimens, it appears that maturity is reached when the rat is about 14 cm. in length. Of 53 female specimens under 14 cm. only one was found to have developed breasts.

Total length of head and body in cm.	Number of specimens.	PERCENTAGE TO LENGTH OF HEAD AND BODY OF		
		Tail.	Hind foot.	Ear.
Under 13 cm.	52	125·9	24·8	16·8
13 and under 15 cm.	67	123·9	22·7	15·5
15 ,, ,, 16 cm. ..	56	123·1	21·3	14·3
16 ,, ,, 17 cm. .	87	122·4	20·1	14·1
17 ,, ,, 18 cm. ..	70	120·6	19·6	13·8
18 ,, ,, 19 cm.	31	117·3	18·6	13·1
19 cm. and over	12	114·6	18·2	12·4

An adult *M. rattus*, then, measures anything from 14 cm. to 20 cm. The largest specimens are old males, and are the only specimens with well-developed bristles in the fur.

The tail is almost always considerably longer than the head and body. The shortest tail in my collection is 102·37 per cent. of the body-length, and the rat measured 21·5 cm., so that it was a very old specimen.

Hind foot.—The sole is seldom uniformly purple. There is always some purple towards the “heel,” but the fore-part of the sole is generally flesh-coloured. The pads are always six in number, the proximo-external pad being well developed. The median pads are cordiform.

Ear.—By measurement, the ear does not appear to be appreciably longer than that of a *Nesokia bengalensis* of the same size, but the setting is characteristic. The ear is “prominent, standing out clearly from the head.”

Breasts.—In females, the usual distribution of the breasts is $\frac{2}{3}$. The most common variation (in 6 per cent. of the specimens) is $\frac{3}{4}$. When this occurs, the third pectoral breast bears the same relative position to the second pectoral as the third inguinal bears to the second inguinal. The first inguinal breast is about 1·25 cm. in front of the second and the second is about ·3 cm. in front of the third.

Distribution.—Of all specimens of *M. rattus*.—

43.3	%	were captured in	“ pucca ”	houses.
28.4	“	“	“ kutchha ”	“
13.7	“	“	grocers’ shop.	
12.0	“	“	grain godowns.	
2	“	“	streets, etc.	

NESOKIA BENGALENSIS.

The following table shows the variations in size and the proportionate measurements of *Nesokia bengalensis* as found in Dacca. In this case also, judging by the breast development, it appears that maturity is reached when the rat is 14 cm. in length. Of 28 female specimens under 14 cm. none have developed breasts.

Total length of head and body in cm.	Number of specimens.	PERCENTAGE TO LENGTH OF HEAD AND BODY OF		
		Tail.	Hind foot.	Ear.
Under 13 cm.	30	79.3	23.56	16.6
13 and under 15 cm.	39	79.15	21.35	14.5
15 „ „ 16 cm.	26	81.6	20.1	13.6
16 „ „ 17 cm.	40	81.7	19.3	13.29
17 „ „ 18 cm.	59	80	18.6	13.1
18 „ „ 19 cm.	43	80.3	18.2	12.5
19 „ „ 20 cm.	24	76.5	17	12.23
20 cm. and over	16	74.8	16.5	11.25

The adult *N. bengalensis* measures anything from 14 cm. to 21 cm.

Bristles appear in the fur of adults at all stages.

Colour.—The colour is iron grey or greyish brown.

Tail.—The tail is from 75—80 per cent of the length of the head and body, though it may be shorter in old specimens.

Hind foot.—The hind foot shows a regular gradation of proportionate measurements with the increase of age. The sole is purple throughout. The pads number five fully developed ones, and one (the proximo-external) which is rudimentary. In 9 per cent. of 56 *N. bengalensis* examined with special care, the proximo-external pad was absent. The median pads are frequently cordiform though smaller than in *M. rattus*.

Ears.—The ears, though in actual measurement not appreciably shorter than those of *M. rattus*, are more closely set on the side of the head. These also show gradually diminished proportionate measurement as age advances.

Breasts.—The commonest distribution of breasts was found to be $\frac{4}{4}$. This arrangement was found in 61.5 per cent. of the female specimens with breast development. In only 8.3 per cent. was the arrangement $\frac{4}{3}$ present. The arrangement is certainly much more variable than in *M. rattus*.

Distribution.—Of all specimens of *N. bengalensis*—

29	%	were	captured	in	“ pucca ”	houses.
29.3	“	“	“	“	“ kutchha ”	“
15.5	“	“	“	“	grocers’ shops.	
21.2	“	“	“	“	grain godowns.	
5	“	“	“	“	streets, etc.	

Most of these observations agree with those of Hossack in Calcutta. They confirm (1) the impossibility of separating varieties of *M. rattus* by size.

(2) The size at which maturity is attained, namely 14 cm. in both species.

(3) The diminution in the proportionate measurement of hind foot and ear in both *Mus rattus* and *Nesokia bengalensis*, and of the tail in *Mus rattus*, as maturity is reached.

On the other hand, I do not find the distinction between cordiform median pads in *Mus rattus* and circular median pads in *Nesokia bengalensis* holds good. The essential point of difference appears to me to be the rudimentary condition of the proximo-external pad in the hind foot of *N. bengalensis*. Again, Hossack gives the usual breast arrangement of *Nesokia bengalensis* as $\frac{4}{3}$. I find it is $\frac{4}{4}$.

