

are almost opposed to each other and the antitragus is thickened and placed against the orifice. The feet are rather broad and with longish claws; the lower portion of the limbs is semi-nude; the upper surface of the feet scaly, a few brownish hairs on the dorsi, with still fewer on the toes; a few long hairs projecting over the claws. Tail coarsely scaly-ringed, almost naked, but with a few short, brown hairs, with no long hairs intermixed; not swollen at the base; tetragonal, long, narrow and tapering, and equalling the length of the trunk and head; no longer hairs at the tip. Fur dense and rather long, not velvety, but soft; dark slaty in its hidden portion, the visible portion being broadly tipped with brown, the general colour of this red-toothed shrew.

Length, tip of snout to vent,	in.	2·35
„ tail,		2·13
„ hind foot,		0·52
„ tip of snout to eye,		0·45
Height of ear,		0·20

The upper front incisors are close together and are small, the posterior portions of the teeth are not acutely pointed. Second incisor rather rounded at the point and not very much larger than the third incisor which is larger than the canine; the tip of the latter tooth is slightly longer than the anterior, external, small cusp of the first molar. The central cusp of the last mentioned tooth is sharply conical but feeble, and its tip is on a level with the point of the third incisor. The points only of the intermediate teeth and the central cusp of the first molar are fully tipped with reddish, and in the lower jaw, only the incisors and canines show a feeble touch of pigment.

This shrew was found in Sikkim by Mr. W. T. Blanford.

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IX.—*Notes on the Mammalian Fauna of the Wardwán and Upper Chináb Valleys.*—By R. LYDEKKER, B. A., *Geological Survey of India.*

(Recd. July 11th,—Read August 1st, 1877.)

Knowing the great importance, at the present time, of authenticated lists of the faunas of different districts, I have thought it worth while to bring to the notice of the Society, the following observations on the mammalian fauna, of the valleys of the Wardwán and upper Chináb rivers, made by me during a tour of these regions, in the course of my professional duties. The country noticed includes the greater part of the course of the Wardwán river, (namely, the part from Inshin, to its junction with the Chináb river); and also the valley of the Chináb from Kishtwár upwards to the point where this river divides into the two smaller streams of the

Chándra and the Bágha, in British Lahúl. The country is particularly interesting as being the border land between the Tibetan region on the one hand, and the so-called Himalayan region on the other.

The list of mammalia, given in the present paper, is confessedly imperfect, as it takes scarcely any notice of the micro-mammalia and none of the Chiroptera; while such larger mammalia as are noticed are chiefly those which have come under my own observation, or of which I have seen freshly-killed skins or skulls; I think, however, that the list of larger mammalia is tolerably complete.

#### PRIMÆTES.

Of this order I believe only two species exist in the region at present under consideration,—viz., *Inuus rhesus* and *Semnopithecus (Presbytis) schistaceus*.

*Inuus rhesus* I have observed only in the Chináb valley, a short distance above Kishtwár, at an elevation of about 5600 feet; Jerdon in his "Mammals of India" mentions the occurrence of this species in the Himalaya, at an elevation of 5000 feet, as being the highest range of which he knew.

*Semnopithecus schistaceus* ranges to greater heights than the last species, and is not unfrequently seen in pine trees when covered with snow; in our district this species ranges from a short distance above Kishtwár up the Wardwán valley as far as the village of Marú or Petgám which has an elevation of about 7500 feet, beyond which point I did not observe it. In the Chináb valley I saw large numbers of this species near the village of Seri, or Sereri, at an elevation a little below 9000 feet; I think it does not range much further up the valley than the above-mentioned village. According to Jerdon the species has been observed at greater elevations than those here mentioned.

#### CARNIVORA.

*Felis pardus* is extremely common throughout the greater part of the Wardwán and upper Chináb valleys; in the latter I picked up a portion of a skull as far up as the village of Tindi. The species ranges to a considerable height in pursuit of Ibex.

*Felis tigris*; I have been told by a friend that an individual of this species was killed some years ago in the Wardwán: even if this be true, the species can only be regarded as an occasional straggler into these regions.

*Felis unciæ*; of this species I have seen two skins of individuals which were killed on the southern side of the great snowy range separating the Chináb valley from Zanskár; I believe the species has never been found to the south of the Chináb, nor can I hear of its occurrence in Wardwán: its proper home is undoubtedly the Tibetan region.

I have not come across any specimens of the smaller *Felidæ*, and can say nothing as to their presence in, or absence from, the districts under consideration.

The two species of Himalayan Bear—*Ursus isabellinus* and *Ursus tibetanus*—range over the greater part of our district; the latter species is found generally at a lower elevation and in more forest-clad ground than the former; *U. isabellinus* is found over the whole of the upper Wardwán and Chináb valleys, but does not extend down to the lower elevation of Kishtwár, and becomes scarce above Triloknath; it also occurs abundantly to the south of the Chináb in the upper Chamba district. *U. tibetanus* does not, so far as I can learn, extend much higher up the Wardwán valley than the village of Petgám, something over 7000 feet in height; it is found, chiefly in the forests near the river, along the whole of the Chináb valley from Kishtwár to Tindi, beyond which I have not heard of it; like the last species it is also common in Chamba. The north-easterly range of both species (except in the case of a few stragglers) is limited by the ranges of high mountains which separate the Wardwán valley, and the Chináb valley, from the Tibetan regions of Súrú and Zanskar.

Among the *Canidæ*, *Canis (Vulpes) montanus* is exceedingly common throughout the Wardwán and Chináb valleys: I have also procured specimens of another large fox\* which has some resemblance to the black varieties of *Canis (Vulpes) leucopus*; but I am by no means certain as to the identity of the two forms, especially as *C. leucopus* is not mentioned by Jerdon as occurring in the Himalayas. The back of the Chináb form is fulvous, the under-parts and limbs are nearly black, with a few dirty white streaks, the outer surfaces of the ears jet black, and the tail blackish, with a white tip.

*Cuon rutilans*, if I may judge by tracks, occurs both in the Chináb and Wardwán valleys.

*Herpestes griseus* and *Mustela subhemachelana*, which are so common in Kashmír, I have not seen anywhere in the upper Chináb or Wardwán valleys.

On the Chináb, however, I have seen two specimens of a species of weasel, which I cannot identify with any of the species described in Jerdon, unless it be a variety of *Mustela kathiah*, which is only known from Nepal. Unfortunately both times that I saw these animals I had only a rifle with me, so I was unable to procure them. The fur of the body and tail is of a reddish brown colour, and there is a large white blaze on the face, quite different from any described species.

#### RODENTIA.

Marmots occur on the snowy range which separates the Chináb valley from Zanskar, but they do not occur on the range to the south of the

\* Mr. Blanford tells me that this form is probably *C. montanus*.

Chinab ; I have been shown a considerable number of skins from the former range, all of which are characterized by having short tails and which I have no doubt therefore belong to *Arctomys himalayanus* ; I have seen no specimens of *Arctomys caudatus*, from this district.

I am not aware whether or no Marmots occur in the Wardwán.

*Lagomys Roylei* occurs not uncommonly in the upper Chináb between Kilar and Tindi ; I did not see any specimens lower down, nor any in Wardwán.

*Pteromys inornatus* occurs throughout the Wardwan valley and in the upper Chinab valley as far as Saneh, in considerable numbers ; its peculiar cry is very frequently heard at night, especially in wooded districts.

#### UNGULATA.

*Cervus cashmeriensis* is found on the Kashmír side of the Wardwán valley, but does not extend to the opposite side, or into the Chináb district. The comparatively few individuals that are found in Wardwán may be regarded as merely stragglers from Kashmír.

*Moschus moschiferus* occurs throughout the Wardwán valley, and very abundantly in the Chináb valley some distance above Kishtwár ; I am not aware whether or no it extends into Chináb ; it becomes somewhat rare above Saneh in the Chináb valley.

*Hemitragus jemlaicus* is exceedingly common in the thickly wooded districts of the lower Wardwán valley, and of the lower half of the upper Chináb valley ; in the latter region the village of Kilar (except in the case of stragglers) seems to mark its eastern range ; this species also occurs in Chamba. The females are very generally found in the thick forests which extend down to the level of the Chináb above Kishtwár, while the males appear to prefer the more open ground which occurs at a higher level ; on more than one occasion I have seen a flock of this species numbering twenty individuals.

*Nemorhædus goral* is found in considerable numbers on the southern or Chamba side of the range of mountains running along the southern bank of the Chináb, and a few individuals may be found on the northern side of the same range ; but the range of the species is limited to the north by the Chináb.

*Nemorhædus bubalina* ; of this species I have not heard of or seen any individuals in our country.

*Capra sibirica* ; the range of this species in the Kishtwár district is limited to the west by the Wardwán river ; and to the south by the Chináb ; proceeding up the former river, however, as far as Petgám and Inshin, we find the species occurring on the western or right bank of the river, though not in such numbers as on the eastern or left bank. In the same manner

if we follow the course of the Chináb above Kishtwár, we find that beyond the village of Tindi, Ibex, though in small numbers, occur on the southern or left bank of the river; generally they are not found on the Chamba side of the range of mountains running along the southern bank of the Chináb; but early this season a small flock was observed which had crossed the range into the Barmaor district; this being, as far as I can learn, the only instance of Ibex being seen there. To the east of the Wardwán, and to the north of the Chináb, Ibex in great numbers range over the Tibetan districts of Súrú, Zanskár and Ladák.

Wherever Ibex are found either to the west of the Wardwán or to the south of the Chináb, these rivers are bridged over during some portion of the year by snow, across which bridges the Ibex have doubtless passed from the country to the east and south of the two rivers, which is their proper home.

*Capra Falconeri* is not found within the district under consideration.

*Sus indicus* is found in the Chináb valley at and below Kishtwár, but I believe it does not range above that place, either in the Chináb or the Wardwán valley.

Though not strictly belonging to the wild fauna of the district, I may mention that the half-breed between the Indian cattle and the domesticated Yák is commonly employed in agriculture, in the Chináb valley, at and above the village of Gúlábgarh, the elevation of which place is but slightly over 6000 feet above the sea-level: this is the lowest elevation at which I have seen the half-breed living constantly in the Himalaya.

From a perusal of the above notes, it will be apparent that the valley of the upper Chináb, and in a lesser degree that also of the Wardwán, forms an ill-defined boundary-line between the faunas of the so-called "Himalayan" and "Tibetan" regions.

If we refer to a list of the Mammalia proper to the plateau of Tibet, given by Mr. W. T. Blanford in the Proceedings of the Zoological Society of London,\* we shall find that the following four Tibetan species, *viz.*, *Felis uncia*, *Canis montanus*, *Arctomys himalayanus* and *Capra sibirica* extend their range into the "Himalayan" region of the Chináb, where they either mingle with or closely approach to the proper fauna of that region, such as *Ursus tibetanus*, *Ursus isabellinus*, *Hemitragus jemlaicus*, and *Nemorhædus goral*. It is worthy of notice that the last of the four above-mentioned species does not occur on the ground where the outlying "Tibetan" forms range, while the other three "Himalayan" species mingle with the "Tibetan."

There appears to be some doubt as to which of the two faunas the Musk-deer properly belongs; Mr. Blanford, in his above-quoted paper,

\* 1876, p. 633.

considers that it should be referred to the "Alpine-Himalayan," and doubts the fact of its occurrence anywhere on the Tibetan plateau. I am not in a position to say definitely, in the face of such authority, that the species does occur in the latter region, but I am rather inclined to think that it must, since I have been shewn skins of this species in Ladák, said to have been procured there; moreover the Ladákis have a distinct name for the animal, *viz.*, *Láwá*,—which is not usual in the case of animals which do not occur in the country. Again Jerdon in his "Mammals of India," in treating of this species, says (taking the statement for what it is worth) that it extends into Central Asia as far as Siberia.

In separating so markedly the "Tibetan" from the "Himalayan" fauna, it must be borne in mind that there is evidence of the two having for a long period of time had means of communication with each other; otherwise we are unable to explain the very close relationship which undoubtedly exists between *Ovis Vignii* of the Tibetan plateau, and *Ovis cycloceros* of the hills of the Panjáb. It is probable that the latter must be regarded as originally a wanderer from the Tibetan fauna, which has become modified into a distinct species, now confined to the outer Himalayan district.

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X.—*On the Metád Rat* (*Golunda meltada*, Gray) with a note on *Golunda Elliotti*.—By W. T. BLANFORD, F. R. S., &c.

(Received June 21st;—Read July 4th, 1877.)

(With Plate I.)

In a paper published in the Journal for last year, Vol. XLV, Pt. 2, p. 165, I gave an account of the *Golandí* rat (*Golunda Elliotti*). The great difficulty which I found in recognizing this rat from the published descriptions, and the identification of the genera *Golunda* and *Pelomys* have induced me to study some of the other peculiar murine forms found in India. The affinities of these species cannot be clearly made out without fuller descriptions of their structural peculiarities than have hitherto been available, and the skulls and teeth especially need comparison with those of other *Muridæ*. We are indebted to Dr. Peters for full accounts of the structure of two Indian rodent genera *Nesokia*\* (= *Spalacomys*) and *Platacanthomys*†; but of others, such as *Golunda*, *Leggada* and *Vandeleuria* so little has hitherto been known that they are not even mentioned in Mr. Alston's recent classification of the *Glires*.‡

\* *Spalacomys indicus* (= *Nesokia Hardwickei* of Jerdon, and perhaps of Gray) Abhandl. Kön. Akad. der. Wiss. Berlin, 1860, p. 139, Pl. II, fig. 1.

† P. Z. S. 1865, p. 397, Pl. 20.

‡ P. Z. S. 1876, p. 61.



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