

VI.—*On the Mammals and Birds collected by CAPTAIN C. E. YATE, C. S. I. of the Afghan Boundary Commission.*—By J. SCULLY.

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Mr. Wood-Mason has asked me to contribute a paper on the collection of mammals and birds made by Captain C. E. Yate in Northern Afghanistan and presented by that officer to the Indian Museum; the following notes are the result. The collection, I understand, was made after the departure of the Naturalist of the Commission, so it may possibly include some forms not secured by him, and doubtless additional localities will now be made known for many of the species previously obtained.

The collection contains 13 species of mammals and 110 species of birds, those comprised in the first class being particularly interesting. I have carefully examined every specimen entered in the following lists, and the identifications are as accurate as I can make them with the rather limited means of effecting comparisons. The localities and dates are carefully entered by Captain Yate on every ticket and most of the specimens of birds are sexed also; but I have found so many errors in the sexing of the birds that I have thought it best to omit this part of the record. When I have noted the sex, I am responsible for the entry.

I have to express my thanks to Mr. Wood-Mason for giving me access to the collections under his charge at all sorts of unofficial hours, for permitting me to take most of Captain Yate's collection to my house for identification, and for procuring for me from many quarters sundry works for reference.

MAMMALIA.

1. *ERINACEUS ALBULUS*, Stoliczka.

1. Maruchak, Murghab, Herat, May 23.

2. Badghis, Herat.

This Hedgehog agrees well with typical examples of the species to which I have referred it, from Yarkand. The fur on the whole lower surface of the body is white, the head and cheeks are pale rufescent fawn, the ears pale isabelline behind and white in front; the hands and feet are brown above, with a few white hairs intermixed. There is no nude area on the vertex; the spines measure 0·8 to 0·9 inch and have two dark and two pale bands, the tip being pale. Length of ear in front, from orifice, 1·45; fore foot 0·85, with claws 1·02; hind foot 1·4, with claws 1·53; tail 0·8. Teeth: *i.* 2 half the size of *i.* 3, *c.* has two fangs

anterior and posterior, *pm.* 1 two distinct fangs, *pm.* 2 three fangs, two buccal and one palatine. *E. albulus* seems quite distinct from *E. auritus* with which I have compared it.

2. FELIS CAUDATA (Gray).

1. Maimanab.

A flat skin, without skull. Nose to insertion of tail about 29·5 inches, tail about 13, hairs at tip of tail 0·7, ear from orifice at front 2·2, longest whisker 3·5, palma 3·2, planta 1·4. The ears are pointed, with a small tuft of hair at the apex measuring about 0·25. The general colour of the fur is, above, a pale yellowish grey with dusky streaks mainly along the centre of the back from nape to root of tail. Below, the fur is creamy white with dusky spots showing through here and there. The fur is soft and moderately long, grey at the base all over the body, then isabelline, and, where dark markings appear on the surface, the tips of the hairs are blackish. The head is grizzled grey, darker than the back, the sides of the nose pale fulvous, the cheeks white. The ears are pale isabelline behind, brown at the tips, and inside the hairs are whitish. The limbs are pale yellowish grey in front, with faint dusky markings near the body; inside whitish except the plantar and palmar surfaces, which are brownish black. Tail above on proximal half fulvous grey with dusky dashes resembling the back, below whiter and almost free from dark markings like the belly; rest of tail greyish white with four black rings and a black tip 1 inch long. This specimen is closer to *F. caudata* than to any other species with which I am acquainted, but from want of specimens for comparison, and in the absence of the skull, I cannot feel certain that the identification is correct.

3. CANIS LUPUS, Linn.

1. Afghan Turkistan.

A flat skin, without skull. Nose to root of tail 37·5 inches, tail 12, hair at end of tail 2·5, ear from orifice in front 3·8. There is no black on the ears or the hind limbs; the fore limbs have a narrow black stripe down the front, ending about six inches above the point of the toes. Down the middle line of the back and along the upper surface of the tail the hairs are mainly black, and the tip of the tail is quite black.

4. VULPES MONTANA, Pearson.

1, 2. Afghan Turkestan.

These are again two flat skins without skulls. From nose to root of tail they measure about 29 and 31 inches, tail 15·5, hairs at end of tail 2·5. The face is rufous with the usual dark patch below the eye,

the ears are wholly black behind, the ordinary dark cross on the shoulders is present, and the tail tip is white. One skin has the greater portion of the front of the fore limbs black; in the other this part is rufous; in both specimens the underparts are grey. In the larger animal, probably a male, the fur is much longer and softer, and the tail more bushy than in the other; and the claws, which in both are unusually large, curved, and sharp-pointed, are more powerful. Both these skins can be fairly matched in the large series of *V. montana* which I collected in Gilgit, and to that species I accordingly refer them.

5. *SPERMOPHILUS BACTRIANUS*, sp. nov.

1. ♀ Khamiab, Afghan Turkestan, June 12.

Ear conch rudimentary, soles of hind feet densely haired, tail short, not longer than hind foot, hair on body harsh, very short, unicolor.

Head and body (from skin) 9·5 inches, tail 1·5, with hairs at end included 2·2, fore foot without claws 1·25, hind foot without claws 2·25. On the head and whole body above and below the hair is very short, harsh, closely adpressed, and of the same colour throughout from base to tip. Upper parts nearly uniform pale fawn, the head slightly darker and more brown, and the rump more tinged with rufous; a pale isabelline band, from nostril to eye. Tail like the rump with a black subterminal ring and pale fulvous tip. Edges of lips, chin, throat, and whole lower surface, including inner aspect of limbs, creamy white. Outer aspect of limbs bright fulvous; upper surface of fore and hind feet pale isabelline, below to root of digits covered with creamy white hairs. The outer toe has a long pencil of whitish hair on its under surface which exceeds the tip of the claw by about half an inch. The vibrissæ are long, fine, and mostly brown; and a pencil of long glistening white hairs grows below the chin. The claws are black with pale horny tips. There are three pairs of mammæ. The skull is imperfect behind and its total length cannot be given; the posterior end of the nasals extends further back than the termination of the premaxillæ:—

	Inch.
Greatest breadth of zygoma,.....	1·3
Breadth of brain case behind postorbital processes,...	0·78
Length of nasals,	0·8
Breadth „ behind,	0·2
„ „ in front,.....	0·26
Premolar to symphysis of premaxillæ,	0·6
Posterior margin of palate to incisors,	0·98
Breadth of palate between <i>pm.</i> 2,	0·27
Length of mandible, condyle to symphysis,	1·3

From the characters already given for this souslik, it could not be referred to any species of *Spermophilus* belonging to the section in which the hind feet are not haired below, e. g., *S. fulvus*, *S. rufescens*, *S. erythrognys*, *S. brevicauda*, *S. mugosaricus*, *S. concolor*, or *S. musicus*. Of the section having well-haired soles, *S. eversmanni* and allies are also excluded by the length of the tail; Middendorff gives the length of tail in *S. eversmanni* as 4.2 inches, with terminal hairs 5.5. Of the short-tailed sub-section, *S. citellus*, *S. dauricus*, *S. guttatus*, *S. xanthoprymnus*, and *S. mongolicus* are excluded for various, but good and sufficient, reasons which to enumerate would be long. The only likely species that remains is *S. leptodactylus* of Lichtenstein, and, to it, I was at first disposed to refer the specimen collected by Captain Yate. The position of Lichtenstein's species is, in the first place, involved in doubt: it was distinctly described as having the hind feet haired below, but, according to Brandt (Bull. Acad. Sc. St. Petersburg II, p. 359), Eversmann proved to his satisfaction that *S. leptodactylus* was the same species as *S. fulvus*, which has the soles bare. However this may be, I have carefully compared Lichtenstein's detailed description of his *Citillus leptodactylus* (Säugethiere, Tab. XXXII.) with the specimen under notice and can only come to the conclusion that the latter is perfectly distinct, even if the question of hair on the soles be left out of consideration. In describing this species as new I have not overlooked Brandt's caution about the young of bare-soled sousliks having sometimes that part tolerably well covered with hairs.

6. GERBILLUS, sp.

1. ♂ Balkh, Afghan Turkistan, July 4.

Head and body about 5.4, ear at front from orifice 0.6, fore-foot 0.38, with claws 0.45, hind foot 1.2, with claws 1.3. Fur long, fine, and very soft. Bright rufous brown or fawn colour above, many of the hairs black tipped, the basal parts of the hair leaden grey; below the hairs white throughout their length. Ears fairly well haired, fawn-coloured behind with a white margin, in front with scanty white hairs at the margins; whiskers white. Fore limbs white above and below, the palms naked; hind feet isabelline above, with whitish hairs on the soles, including the toes, except part of the hinder portion of the tarsus. The tail is imperfect, but its basal part for about 2.5 inches is coloured like the back above, and is slightly paler below.

The upper incisors are well grooved, the enamel folds of the upper molars are completely united in the middle, exactly as in *G. hurriance*, and the hinder molar has not a vestige of any posterior talon—the outline of the crown as seen from above being simply a narrow oval,

with the points of the oval buccal and palatine. The following are the principal measurements of the skull:—

	Inch.
Total length,	1.58
Breadth of zygomatic arch,.....	0.85
„ of brain-case at posterior root of zygoma,...	0.69
Length of palate to incisors,	0.69
„ of nasals,	0.6
Mandible, condyle to symphysis,	0.78

Although the upper molars agree best with those of *G. hurrianae*, this specimen is quite different in character and colour of fur and in shape of skull; neither can it be referred to *G. erythrurus* with which I have compared it. It possibly represents a new species, but, as the tail is imperfect, I do not propose a name for it.

7. MUS BACTRIANUS, Blyth.

1. ♂ Chahar Shamba, Maimanah, April 4.

This specimen agrees fairly well with typical examples of *M. bactrianus*, but the tail is shorter than the head and body, though this is not of importance in a skin. In comparing this specimen, I have had occasion to examine many specimens of *M. pachycercus* Blanford, from Yarkand, and I may note that that species is quite distinct from *M. bactrianus* and has been happily named.

8. ARVICOLA GUENTHERI, Danford and Alston.

1. Afghan Turkestan.

Head and body 4.4 inches, hind foot 0.77, ear at front 0.4. The external form and colours agree well with the original description of the species from Asia Minor (P. Z. S. 1880, p. 62), except that in this specimen the rudimentary thumb of the forefoot has a small nail. The pattern of the molar teeth is very similar to that of *A. guentheri*, with the following exceptions:—

In this specimen $\overline{m.1}$ has not the rudimentary 4th angle on the inner side so prominent; it is barely indicated. On $\overline{m.2}$, however, this posterior inner angle is distinct and must be counted, although in the original description above cited it is omitted. $\overline{m.3}$ has the posterior lobe less prolonged backwards and tends less to form an angle on the outside than in the Asia Minor species. $\overline{m.1}$ too has the anterior lobe more compressed laterally in the present specimen. The following table exhibits the molar pattern according to the usual mode of counting:—

	Spaces.	External angles.	Internal angles.
<u>m. 1</u>	5	..... 3	..... 3
<u>m. 2</u>	4	..... 3	..... 3
<u>m. 3</u>	6	..... 3	..... 4
<u>m. 1</u>	9	..... 5	..... 5
<u>m. 2</u>	5	..... 3	..... 3
<u>m. 3</u>	3	..... 2	..... 3

9. ELLOBIUS INTERMEDIUS, sp. nov.

1. Bokun,	Murghab, Herat, May	10.
2. Kila Wali,	ditto ditto May	14.
3. Ditto	ditto ditto May	26.

Head and body (from skins) 4·5 to 5 inches, tail 0·4 to 0·45, hind foot 0·8 to 0·9, forefoot 0·55 to 0·67. Colour above, and on sides of head below the zygomatic projection, bright pale yellowish red (or bright rust colour). Head dark brown. Below greyish white throughout. Tail pale fulvous, the terminal hairs at tip white. Fore and hind feet whitish. Fur short (about 0·35 on hinder part of back), very soft and fine dark grey or leaden at the base, except on centre of belly, where it is white throughout its length. The bright colour of the upper surface being due to the short pale coloured tips of the hair, any abrasion of these gives the animal a dark leaden grey colour above.

Skull :—

	Inch.	mm.
Breadth across hinder part of zygomatic arches,.....	1·05	27
„ of interorbital constriction,	·21	5·5
„ of brain-pan behind posterior termination of zygoma,	·62	16
Length from anterior molar to incisors,	·54	14
„ of upper molar series,.....	·32	8
„ of palate to incisors,	·86	22·5
Breadth of palate between anterior molars,	·14	4
Length of lower jaw, condyle to symphysis,.....	1·05	27
„ of lower molar series,.....	·33	8·5

The nasals are shaped somewhat like a wine-bottle bent in at the sides, their external margins being nearly straight behind, then convex, then strongly concave, and finally convex again at the front end; the posterior ends are pointed, not truncated. The posterior ends of the premaxillæ extend quite 3·5 mm. behind the ends of the nasals and the same distance beyond the origin of the zygomatic arch. The zygomatic arch is high throughout; the maxillary process does not reach the

squamosal along the lower margin, a square process from the malar interposing itself and forming the lower edge of the arch for a length of 1.5 mm.

The skull differs from that of *E. fuscocapillus* in having the nasal portion shorter, the distance from anterior root of zygoma to symphysis of premaxillaries being 15 mm. in *E. fuscocapillus* against 12 mm. in the present species; the zygomatic arch is quite differently shaped, being higher throughout, and the malar bone forms part of the lower margin, while in *E. fuscocapillus* the maxillary and squamosal processes meet along the lower margin, so as to exclude the malar; and the anterior palatine foramina are much smaller and narrower.

From *E. talpinus*, the skull of the present species differs completely in the shape of the nasals and in the extension backwards of the end of the premaxillæ; the shape of the zygoma presents even a greater divergence than from *E. fuscocapillus*, but the arrangement of the bones in the arch are closely similar in *E. talpinus* and *E. intermedius*; the anterior palatine foramina are very much smaller than in *E. talpinus*, and there are other differences which will be apparent on studying Mr. Blanford's very clear account of the contrast between the skulls of *E. fuscocapillus* and *E. talpinus* in J. A. S. B., vol. L, pt. II, 1884, pp. 122–123.

Teeth. The incisors are very long and pure china-white. The molar pattern is as follows:—

	External angles.	Internal angles.
<u>m. 1</u>	3	3
<u>m. 2</u>	3	2
<u>m. 3</u>	3	2
<u>m. 1</u>	4	5
<u>m. 2</u>	3	3
<u>m. 3</u>	3	3

m. 1 and m. 2 do not differ from the corresponding teeth in *E. fuscocapillus* and *E. talpinus* in any important particular. m. 3 differs markedly from the corresponding tooth in *E. fuscocapillus* and resembles that of *E. talpinus* in wanting a posterior lobe behind the hindmost outer angle; both the internal angles too are less prominent in the present species, the last angle being much rounded.

In m. 1 the anterior lobe is less developed than in *E. fuscocapillus*, but still there are 4 external and 5 internal angles, not 3 and 4 as in *E. talpinus*.

The three species of *Ellobius* may be thus contrasted :—

<i>E. talpinus.</i>	<i>E. intermedius.</i>	<i>E. fuscocapillus.</i>
1. Base of fur almost black.	1. Base of fur dark or leaden grey.	1. Base of fur light grey.
2. Zygoma low, malar interposed between maxillary and squamosal processes in lower margin.	2. Zygoma high throughout, malar interposed between maxillary and squamosal processes in lower margin.	2. Zygoma high in middle, maxillary and squamosal processes alone form lower margin.
3. Nasals convex externally.	3. Nasals bottle-shaped, or external margin alternately convex and concave.	3. Nasals bottle-shaped, or external margin alternately convex and concave.
4. Premaxillæ terminate posteriorly opposite end of nasals.	4. Premaxillæ prolonged behind hind end of nasals.	4. Premaxillæ prolonged behind hind end of nasals.
5. $\frac{m.3}{m.1}$ has no posterior lobe behind last outer angle.	5. $\frac{m.3}{m.1}$ has no posterior lobe behind last outer angle.	5. $\frac{m.3}{m.1}$ has a prominent posterior lobe behind last outer angle.
6. $\frac{m.1}{m.1}$ angles 3—4.	6. $\frac{m.1}{m.1}$ angles 4—5	... 6. $\frac{m.1}{m.1}$ angles 4—5.

For the comparison of the three specimens collected by Capt. Yate, I have Mr. Blanford's very full description of a skin and skull of *E. fuscocapillus* (with figure of skull and teeth) in the paper before cited, and three skins and a skull of the same species in the Indian Museum. I have no specimen of *E. talpinus* for comparison, but Mr. Blanford has so clearly and, I am sure, accurately given the differences between that form and *E. fuscocapillus* that I have no hesitation in deciding that Capt. Yate's specimen must be referred to a new species. The only known locality for *E. fuscocapillus* is Quetta, and the Russian *E. talpinus* is recorded by Severtsoff from Western Turkestan; so that the present species is intermediate in its habitat, as well as in its distinctive characters, between the two better known species of the genus. Severtsoff calls his Turkestan specimens *E. talpinus*, var. *rufescens*, and these may prove to belong to the species I have described.

Capt. Yate notes on the ticket of one of the specimens, "Eyes scarcely visible; caught by day."

10. LAGOMYS RUFESCENS, Gray.

1. Shadian, Afghan Turkistan, August 2.
2. Ditto ditto ditto, August 6.

The above two examples belonging to a well marked and well known species need no extended notice; they agree perfectly with specimens collected by Blanford in Persia. The species was originally described from a specimen obtained in Afghanistan.

11. *LEPUS LEHMANNI*, Severt.

1. Hindu Kush, Afghan Turkistan.

This specimen is not in very good order, and I refer it rather doubtfully to the species described by Severtsoff (*see Ann. & Mag. Nat. Hist.* 1876, "The Mammals of Turkistan"), with which on the whole it seems to agree best. So many species of Asiatic hares have been described which differ only in minute particulars as to make the task of identifying a particular specimen difficult and uncertain; for the number of nominal species probably greatly exceeds the constantly distinguishable forms. In the specimen obtained in the Hindu Kush the ears measure from orifice in front about 4.3 inches, at back 4.8, greatest breadth about 2.7. The anterior external part of the ear is coloured like the back; the posterior part being pale isabelline, black at the tip and partly down the posterior margin.

The general colour above is mixed pale fawn and black. The chin and belly are white and the throat and breast pinkish isabel. The basal part of the fur above and where coloured on the limbs and breast is grey; on the belly the fur is white throughout its length.

The premaxillaries end behind on a level with the nasals, the latter bones having the posterior end sloping inwards and the junction of their outer and hinder margins slightly rounded.

The mandible from condyle to symphysis measures 3.4 inches.

12. *GAZELLA SUBGUTTUROSA*, Guldenst.

1. ♂ Badghis, Herat.

Head and horns, with skin of head preserved. Band from between horns to nostrils rufescent fawn. A pale isabelline band outside this from level of inner canthus of eye to upper lip. A dark rufous fawn stripe from eye-pits to commissure of lips. The ear measures about 5.25 inches in length from orifice to tip in front. The horns from the base curve outwards, forwards, then backwards, and at the tips they curve inwards and forwards. There are 20 rings on each horn, and these end about 2.5 inches from the tips. The horns measure 14.7 inches in length along the curve in front, the distance of the tips apart is 6.9, the greatest distance apart 7.5, and the girth at the base about 4.5.

13. *CERVUS CASHMIRIANUS*, Falconer.

1. Banks of Oxus near Balkh, Afghan Turkistan.

This is a cast left antler of an elaphine stag about which Capt. Yate gives the following information, "This was a horn from the banks of the Oxus near Balkh and will help to determine the identity of the

deer found in the jungles along that river." The antler is not perfect, as the beam is broken above the royal, so that the form of the crown cannot be ascertained; the following are the measurements:—

	Inches.
Length from burr to broken end of beam along curve inside,	17·8
„ of brow tine, about,.....	4
„ of bez tine, about,	7
„ of royal tine along curve, about,	7·7
„ of beam above upper angle of royal,.....	6·9

Viewed in front, the beam is nearly straight (though of course inclined outwards) as far as the royal, where it begins to curve inwards. Viewed from the outer side, it curves slightly back from the bez and forwards to the origin of the royal; above the royal, it curves gently back and then forwards and inwards. The brow tine is straight and directed somewhat upwards: the much longer bez is directed outwards and upwards, and towards its tip it has a slight curve inwards; the royal is directed first outwards, then it curves at about 3 inches from the beam strongly upwards and inwards, the point being well inside the line of the broken end of the beam. Without measurement, the bez looks longer than the royal, and the middles of the bez and brow tines, measured along the middle line of the beam, are 2·5 inches apart, or from upper margin of brow to lower margin of bez at junction with beam about 1·7 inches.

It is quite clear I think that this antler agrees better with that of *C. cashmirianus* than with that of any other deer to which it could be referred. It is quite distinct from *C. maral*, as figured by Selater in Trans. Zool. Soc., Vol. VII. I may mention that Mr. Wood-Mason, who examined this horn before I saw it, came to the conclusion that it must be referred to *C. cashmirianus*. Of course the evidence of such a fragment is not conclusive proof that the stag of the Oxus basin is really identical with the Kashmir species; complete specimens are necessary for the settlement of that point.

AVES.

1. CIRCUS CYANEUS, (Linn.).

1. ♀ Zulfikar, Badghis, Herat, November 25.
2. ♂ Chahar Shamba, Maimanah, February 1.
3. ♀ Maruchak, Murghab, Herat, March 13.
4. ♂ Maruchak, ditto ditto March 10.

The males are in immature plumage; one is noted as having the iris yellow. A female, not adult, had the irides dark brown.

2. *CIRCUS MACRURUS*, (Gmel.).

1. ♂ Maruchak, Murghab, Herat, March 18.

Adult, wing 13·7, iris yellow.

3. *CIRCUS CINERACEUS*, (Mont.).

1. ♂ Karawal Khana, Murghab, Herat, April 17.

In adult plumage, but with chestnut streaks on belly and flanks.

4. *CIRCUS CERUGINOSUS*, (Linn.).

- | | | | |
|---------------------|-----------------|-------|-----|
| 1. ♂ Maruchak, | Murghab, Herat, | March | 12. |
| 2. ♂ Karawal Khana, | ditto ditto, | April | 16. |
| 3. ♀ Kila Wali, | ditto ditto, | May | 13. |

5. *SCELOSPIZIAS BADIUS*, (Gmel.).

1. Chahar Shamba, Maimanah, February 13.

In immature plumage; wing 8·75 inches, tail 5·6, tarsus 1·52, mid toe *s. u.* 1·32; seven bars on the tail.

6. *ACCIPITER NISUS*, (Linn.).

1. Hauz-i-Khan, Badghis, Herat, December 6.

In rather dark plumage; four bands on tail; wing 9·4 inches, tail 7, tarsus 2·35, mid toe 1·6. The specimen is marked male on the ticket, and, if correctly sexed, may be referable to subspecies *A. melaschistus*.

7. *BUTEO FEROX*, (Gmel.).

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|---------------------|------------|----------|-----|
| 1. ♂ Chahar Shamba, | Mainmanah, | January | 27. |
| 2. ♂ | Mainmanah, | | |
| 3. ♀ Chahar Shamba, | ditto. | February | 4. |
| 4. ♀ Kara Bel, | ditto. | March | 10. |

In all, the tarsi are scutellate in front, the bare portion measuring from 1·8 to 2 inches; the males have the wings 15·9 and 16·5 and the females, 17·1 and 17·8; in the four specimens, the tarsi measure 3·2 to 3·3 and the mid toe 1·5 to 1·6.

8. *MILVUS MIGRANS*, (Bodd.).

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|-------------------|-----------------|-------|----|
| 1. Chahar Shamba, | Maimanah, | April | 4. |
| 2. Karawal Khana, | Murghab, Herat, | April | 9. |
| 3. Ditto | ditto ditto, | April | 9. |

The wings measure 17 and 18 inches.

9. *TINNUNCULUS ALAUDARIUS*, (Linn.).

1. Jan. 21 ; 2. Feb. 4 ; 3. Feb. 7 ; Chahar Shamba, Maimanah.

10. *TINNUNCULUS CENCHRIS*, (Naum.).

1. Maruchak, Badghis, Herat, March 21.
2. Karawal Khana, Badghis, Herat, April 9.

These two specimens are alike ; the wing coverts are mostly rufous, and there are a few small black spots on the abdomen and lower flanks. Wing 9 and 8·9 inches, tail 5·6 and 5·75, tarsus 1·23 and 1·25.

11. *ASIO OTUS*, (Linn.).

1. Kara Baba, Maimanah, March 10.

12. *CARINE BACTRIANA*, (Hutton).

1. Chahar Shamba, Maimanah, January 25.
2. Ditto ditto ditto, February 4.

13. *MEROPS APIASTER*, Linn.

- 1, 2, 3, 4 Chahar Shamba, Maimanah, April 29 to May 1.
- 5, Minar Shadian, Afghan Turkistan.

No. 5 is a young bird with the back green, but the throat coloured as in the adult.

14. *CORACIAS GARRULA*, Linn.

- 1, 2, 3 Chahar Shamba, Maimanah, April 30 and May 1.
4. Min Darakht, ditto, June 1.

15. *CAPRIMULGUS EUROPÆUS*, Linn.

- 1, 2, Kila Wali, Murghab, Herat, May 12.
3. Afghan Turkistan.

The pale eastern form separated as *C. unwini*. No. 3 has rufous bars on the wing where 1 and 2 have large white spots.

16. *CYPSELUS APUS*, (Linn.).

1. Karawal Khana, Badghis, Herat, April 12.
2. Ditto ditto ditto ditto, April 17.
3. Kila Wali, Murghab, Herat May 13.

17. *CYPSELUS MELBA*, (Linn.).

1. Murghab, Herat.

Wing 8·5 inches, tail 3·35.

18. *UPUPEPOPS*, Linn.

1. Maimanah Chul, March 6.

19. *LANIUS PHENICUROIDES*, Severt.

1. Maruchak, Badghis, Herat, March 20.
2. Khwaja Gogirdak, Murghab, ditto, March 27.
- 3, 4, Darband-i-Kil Rekhta ditto ditto, May 18.
5. Maruchak, Badghis, ditto, May 18.

All these specimens fall under section B of the rufous-tailed shrikes as characterised by me in the *Ibis*, 1881, p 433. Nos. 3 and 4 are in full adult plumage, having the head very rufous, the bill, the whole lores, and the post-ocular stripe black, and the lower surface of the body white. Nos. 1, 2 and 5 are in immature plumage with bars on the breast, but the head is distinctly darker than the back. In all, the second primary is either intermediate in length to the fifth and sixth, or equals the sixth. In all stages this species seems to me readily distinguishable from *L. isabellinus*, Hempr. and Ehr.

20. *ERYTHROSTERNA PARVA*, (Bechst.).

1. ♀ Chahar Shamba, Maimanah, April 29.

21. *PRATINCOLA CAPRATA*, (Linn.).

1. ♂ Maruchak, Badghis, Herat, March 19.
2. ♂ Karawal Khana ditto ditto, April 9.
3. ♂ Ditto ditto ditto, April 19.
4. ♀ Kila Wali, Murghab ditto, May 13.

22. *PRATINCOLA MAURA*, (Pallas).

- | | |
|--------------------------------------|-----------|
| 1, 2, Kara Baba, Maimanah, | March 6. |
| 3. Maruchak, Badghis, Herat, | March 18. |
| 4. Ditto ditto ditto, | March 24. |
| 5. Khwajeh Gogirdak, Murghab, ditto, | March 27. |
| 6. Karawal Khana, Badghis, ditto, | April 9. |

23. *SYLVIA AFFINIS*, Blyth.

1. Chahar Shamba, Maimanah, April 28.
2. Ditto ditto, May 1.

24. *SYLVIA MINUSCULA*, Hume.

1. Maruchak, Badghis, Herat, March 13.

25. SYLVIA MYSTACEA, Ménétr.

1. Kila Wali, Murghab, Herat, April 22.
2. Jalaiar, Maimanah, June 2.

This is the species well described and figured by Blanford in his 'Zoology of Eastern Persia' under the name of *Sylvia rubescens*. Its occurrence in the localities above cited is of much interest, as the distribution of the species is thereby considerably extended to both north and east of its previously known range.

26. SYLVIA FAMILIARIS, Ménétr.

1. Kila Wali, Murghab, Herat, April 22.
2. Darband-i-Kil Rekhta, ditto ditto, May 18.

27. HYPOLAIS PALLIDA, (Hemp and Ehr.).

1. Jalaiar, Maimanah, June 2.
2. Ditto.

28. HYPOLAIS RAMA, (Sykes.).

1. Kila Wali, Murghab, Herat, April 22.
2. Ditto ditto, May 13.
3. Darband-i-Kil Rekhta, ditto ditto, May 18.

29. ACROCEPHALUS STENTOREUS, (Hempr. and Ehr.).

1. 2. Kila Wali, Murghab, Herat, May 15.

30. CETTIA CETTI, (Marm.).

1. Chahar Shamba, Maimanah, February 20.
2. Ditto ditto, February 22.

31. MERULA VULGARIS, Selby.

1. ♂ Chahar Shamba, Maimanah, February 2.
2. ♀ Ditto ditto, February 12.

These examples belong to subspecies *M. maxima*, the male having the wing 5.6 inches and the female, 5.25.

32. MERULA ATRIGULARIS, (Temm.).

1. Chahar Shamba, Maimanah, January 25.
- 2, 3. Ditto ditto, January 28.
4. Ditto ditto, February 22.
5. Ditto ditto, April 4.

2 and 3 have the lores, chin, throat, and breast quite black.

33. *CYANECULA SUECICA*, (Linn.).

- | | | | |
|-----------------------|-----------------|-------|-----|
| 1. Maruchak, | Badghis, Herat, | March | 18. |
| 2. Karawal Khana, | ditto ditto, | March | 24. |
| 3. Ditto | ditto ditto, | April | 9. |
| 4. Yedikul, Maimanah, | | May | 31. |

34. *MONTICOLA CYANUS*, (Linn.).

- | | | | |
|-------------------------------|----------------|-------|-----|
| 1. Darband-i-Kil Rekhta, | Murghab Herat, | May | 18. |
| 2. Shadian, Afghan Turkistan, | | July | 12. |
| 3. Ditto | ditto, | Sept. | 1. |

Nos. 2 and 3 are in immature plumage.

35. *RUTICILLA RUFIVENTRIS*, (Vieill.).

- | | | |
|-------------------------------|---------|----|
| 1. Deh Tang, Ghorband, Kabul, | October | 8. |
|-------------------------------|---------|----|

In female plumage.

36. *RUTICILLA ERYTHRONOTA*, (Eversm.).

- | | | |
|-----------------------------|-------|-----|
| 1. Chahar Shamba, Maimanah, | March | 3. |
| 2. Andkhui, | Maroh | 20. |

37. *SAXICOLA MORIO*, Hemp. and Ehr.

- | | | | |
|-------------------|-------------------|-------|-----|
| 1. Maruchak, | Badghis, Herat, | March | 18. |
| 2. Karawal Khana, | ditto ditto, | April | 9. |
| 3. Shadian, | Afghan Turkistan, | July | 9. |

No. 3 is a nestling.

38. *SAXICOLA OPISTHOLEUCA*, Strickland.

- | | | |
|------------------------------|-------|-----|
| 1. Maruchak, Badghis. Herat, | March | 20. |
|------------------------------|-------|-----|

39. *SAXICOLA DESERTI*, Temm..

- | | | |
|------------------------------|-------|-----|
| 1. Maruchak, Murghat, Herat, | March | 19. |
|------------------------------|-------|-----|

An adult male, wing 3.55 inches, black on lateral rectrices 1.7; white edge on inner web of primaries not extending to shaft of feathers. Second primary intermediate in length to fifth and sixth.

40. *SAXICOLA FINSCHII*, Hengl.

- | | | |
|-------------------------|-------|-----|
| 1. Kara Bala, Maimanah, | March | 14. |
|-------------------------|-------|-----|

41. *SAXICOLA ISABELLINA*, Rüpp.

- | | | |
|-----------------------------|--------|-----------|
| 1. Chahar Shamba, Maimanah, | April | 4. |
| 2. ... | ditto, | April 17. |
| 3. Khwaja Gogirdak, | | |

The black on the lateral tail feathers measures 0.95 inch.

42. CINCLUS ASIATICUS, Bechst.

1. Iskar, Afghan Turkistan, Oct. 5.
- 2 & 3 Deh Tang, Ghorband, Kabul, Oct. 8.

No. 1 is a grey, spotted, young bird.

43. HIRUNDO RUSTICA, Linn.

1. 2, Karawal Khana, Badghis, Herat, April 12.

44. COTYLE RIPARIA, (Linn.).

1. Karawal Khana, Badghis, Herat, April 14.

45. COTYLE RUPESTRIS, (Scop.).

1. Darband-i-Kil Rekhta, Murghab, Herat, May 18.

46. TROGLODYTES PARVULUS, Koch.

1. Chahar Shamba, Maimanah, January 26.
2. Ditto ditto, January 28.
3. Ditto ditto, February 1.

Rather deeply coloured wrens, reddish brown above, the throat grey, and the general barring not so prominent as in *T. nipalensis*.

47. SITTA SYRIACA, Ehr.

1. 2. Darband-i-Kil Rekhta, Murghab, Herat, May 18.

The wings measure 3·45 and 3·4 inches, tail 2·15, tarsus 1 and culmen 1 and 1·02.

48. MOTACILLA ALBA, Linn.

1. Maruchak, Badghis, Herat, December 15.
2. Chahar Shamba, Maimanah, March 3.
3. Ditto ditto, April 4.

49. MOTACILLA MELANOPE, Pall.

1. Chahar Shamba, Maimanah, April 28.

50. BUDYTES MELANOCEPHALA, (Licht.).

1. ♂ Khwaja Gogirdak, Murghab, Herat, Mar. 27.

This example is in full spring plumage.

51. BUDYTES CITREOLA, (Pall.).

- 1, 2, Chahar Shamba, Maimanah, April 28.

52. *ANTHUS BLAKISTONI*, Swinhoe.

- | | | | |
|-------|--------------------------|----------|-----|
| 1. | Chahar Shamba, Maimanah, | February | 3. |
| 2. | Ditto ditto, | February | 7. |
| 3. | Ditto ditto, | February | 8. |
| 4, 5. | Ditto ditto, | February | 22. |

53. *ANTHUS ROSACEUS*, Hodgs.

1. Maruchak, Badghis, Herat, March 10.

In winter plumage.

54. *ALAUDA GUTTATA*, Brooks.

1. Kila Wali, Murghab, Herat.

Wing 3·6 inches, culmen 0·65, hind claw 0·5. Tertiaries 0·6 short of longest primary, breast finely streaked.

55. *ALAUDA CRISTATA*, Linn.

1. Chahar Shamba, Maimanah, January 4.
2. Ditto ditto, January 26.

The wings measure 4·5 and 4·0 inches, culmen 0·85 and 0·75.

56. *CALANDRELLA BRACHYDACTYLA*, (Leisl.).

- 1, 2 Maruchak, Badghis, Herat, March 17.
3. Khwajah Gogirdak, Murghab, ditto, March 27.

57. *MELANOCORYPHA BIMACULATA*, (Ménétr.).

- 1, 2, 3. Hauz-i-Khan, Murghab, Herat, Dec. 12.

58. *CARDUELIS CANICEPS*, (Vig.).

1. Andkhui, March

59. *ERYTHROSPIZA OBSOLETA*, (Licht.).

- 1, 2, Khwajah Gogirdak, Murghab, Herat, March 27.

Both examples have the bill black.

60. *PASSER MONTANUS*, Linn.

- Chahar Shamba, Maimanah, January 29.

61. *PASSER INDICUS*, Jard and Selby.

- 1, 2, 3, 4. ♂ Karawal Khana. Murghab, Herat, April 15.

62. *PASSER HISPANIOLENSIS*, Temm.

- | | | |
|------|---------------------------------|-----------|
| 1. | Kara Bel, Maimanah, | March 10. |
| 2. | Yulla Chashma, Murghab, Herat, | March 10. |
| 3,4. | Khwajah Gogirdak, ditto, ditto, | March 27. |
| 5.6. | Karawal Khana, ditto, ditto, | April 12. |

No. 5 is a young bird.

63. *EMBERIZA PYRRHULOIDES*, Pall.

- | | | |
|----|---|-----------------------------------|
| 1. | ♂ | Maimanah. |
| 2. | ♀ | Chahar Shamba, ditto, February 1. |

64. *EMBERIZA SCHÆNICLUS*, Linn.

- | | | | |
|-------|---|--------------------------------|-----------|
| 1. | ♀ | Chahar Shamba, Maimanah, | Feb. 20. |
| 2, 3. | ♂ | Ditto ditto, | March 3. |
| 4. | ♀ | Kara Bel, ditto, | March 10. |
| 5. | ♀ | Gulla Chashma, Murghab (Herat) | March 10. |

65. *EMBERIZA FUCATA*, Pall.

- | | | |
|----|----------------------------|----------|
| 1. | Shadian, Afghan Turkistan, | July 17. |
|----|----------------------------|----------|

In immature plumage with dark rufous patches appearing on breast. The feet are very pale and the claws pale horny.

66. *EUSPIZA LUTEOLA*, (Sparrm.).

- | | | | |
|-------|--------|----------------------------|-----------|
| 1, 2. | ♂ | Chahar Shamba, Maimanah, | April 28. |
| 3. | ♀ | Ditto ditto, | April 30. |
| 4. | ♀ | Kila Wali, Murghab, Herat, | May 12. |
| 5. | ♂ juv. | ditto ditto, | May 13. |

67. *CORVUS FRUGILEGUS*, Linn.

- | | | |
|----|---------------------------|-----------|
| 1. | Maruchak, Murghab, Herat, | March 19. |
| 2. | Ditto ditto, | March 23. |

68. *CORVUS MONEDULA*, Linn.

- | | | | |
|----|----------------|-----------------|-----------|
| 1. | Maruchak, | Murghab, Herat, | March 18. |
| 2. | Ditto | ditto, | March 21. |
| 3. | Karawal Khana, | ditto, | April 15. |
| 4. | Maruchak, | ditto, | Dec. 25. |

69. *PICA RUSTICA*, (Scop.).

- | | | |
|----|--------------------------|-------------|
| 1. | Chahar Shamba, Maimanah, | February 3. |
| 2. | Ditto ditto, | February 7. |

70. *STURNUS VULGARIS*, (Linn.).

- | | | |
|----|----------------|--------------|
| 1. | Chahar Shamba, | February 11. |
|----|----------------|--------------|

71. STURNUS POLTARATSKYI, Finsch.

- 1, 2 Chahar Shamba, Maimanah, February 11.
 3. Ditto ditto, February 14.

72. PASTOR ROSEUS, (Linn.).

- 1, 2, Karawal Khana, Badghis, Herat, April 14.

73. COLUMBA INTERMEDIA, Strickland.

1. Chahar Shamba, Maimanah, February 22.

74. COLUMBA EVERSMANNI, Bonap.

1. Min Darakht, Maimanah, June 1.

75. TURTUR AURITUS, Gray.

1. Chilik, Afghan Turkistan, July 2.

76. PTEROCLES ALCHATA, (Linn.).

1. 2 ♂ Kham-i-ab, Afghan Turkistan, June 18.
 3. ♀ „ ditto

77. PHASIANUS PRINCIPALIS, Sclater.

1. ♂ Chahar Shamba, Maimanah, Feb. 10.
 2. ♂ Maruchak, Murghab, Herat, March 10.
 3. ♂ Ditto ditto, March 20.
 4. ♀ Ditto ditto, March 26.
 5. ♀ Ditto ditto, Dec. 25.

This fine pheasant has lately been described as new, from specimens obtained in the basin of the Murghab river by officers of the Afghan Boundary Commission. It is very like *Phasianus shawi* of Eastern Turkistan, but is fairly distinguishable from it by apparently constant characters. I have examined some half dozen males of this pheasant, and I note that the variation between individuals is very small; one, however (No 1) above has a distinct wash of green on the rump and upper tail coverts, and a small snow white spot on one side of the hind-neck, marking the position of a demi-collar. On the characters and distribution of *P. principalis*, *P. shawi*, and other allies of *P. colchicus*, Mr. Seebohm's interesting paper in the Ibis for April 1887, p. 168 may be consulted.

78. TETRAOGALLUS HIMALAYENSIS (Gray).

1. Dhap Darah, Hindu Kush, Turkistan, Oct. 7.

79. *COTUNIX COMMUNIS*, Bonn.
1. ♂ Chahar Shamba, Maimanah, April 4.
2. ♀ Karawal Khana, Murghab Herat, April 19.
3. ♂ Chahar Shamba, Maimanah, May 6.
80. *ÆGIALITES CURONICA*, Gmel.
1, 2, Karawal Khana, Murghab, Herat, April 10.
81. *CHETTUSIA VILLOTÆI*, (Audouin).
1, 2, Kham-i-ab, Oxus, Afghan Turkistan, June 12.
82. *VANELLUS CRISTATUS*, Meyer.
1. Chahar Shamba, Maimanah, Feb. 11.
83. *SCOLOPAX RUSTICULA*, (Linn.).
1. Chahar Shamba, Maimanah, Feb. 3.
84. *GALLINAGO SOLITARIA*, Hodgs.
1. Deh Tang, Ghorband, Kabul, October 8.
85. *GALLINAGO SCOLOPACINUS*, Bonap.
1. Chahar Shamba, Maimanah, February 5.
86. *MACHETES PUGNAX*, (Linn.).
1. ♂ Chahar Shamba, Maimanah, February 19.
2. ♀ Ditto ditto April 4.
87. *TOTANUS OCHROPUS*, (Linn.).
1. Karawal Khana, Murghab, Herat, April 14.
88. *TRINGOIDES HYPOLEUCUS*, (Linn.).
1. Darband-i-Kel Rekhta, Murghab, Herat, May 18.
2. Maruchak ditto ditto, May 22.
89. *HIMANTOPUS CANDIDUS*, Bonn.
1. Oxus, Afghan Turkistan
2. Kham-i-ab, ditto ditto, June 12.
90. *OTIS TETRAX*, Linn.
1. Maruchak, Murghab, Herat, March 12.
2. Chaman-i-Bed, Badghis, ditto Dec.
91. *RALLUS AQUATICUS*, Linn.
1. Maruchak, Murghab, Herat, Dec. 23.

92. PORZANA MARUETTA, Leach.

1. Karawal Khana, Murghab, Herat, April 9.
2. Chahar Shamba, Maimanah, April 30.

93. PORZANA BAILLONI, (Vieill.).

- 1, 2 Kila Wali, Murghab, Herat, April 24.

94. CREX PRATENSIS, Bechst.

1. Maruchak, Murghab, Herat, May 7.

95. FULICA ATRA, Linn.

1. Andkhui, March

96. LARUS RIDIBUNDUS, Linn.

1. Maruchak, Murghab, Herat, March 18.

97. STERNA ANGLICA, Mont.

1. Oxus, Afghan Turkistan.
2. Kham-i-ab, Oxus, Afghan Turkistan, June 12.

98. STERNA MINUTA, Linn.

1. Kham-i-ab, Afghan Turkistan, June 12.

99. PHALACROCORAX CARBO, (Linn.).

1. ♂ Maruchak, Badghis, Herat, March 19.

A fine example in full breeding plumage.

100. ANAS STREPERA, Linn.

1. Karawal Khana, Murghab, Herat, April 16.

101. ANAS ANGUSTIROSTRIS Ménétr.

1. Kham-i-ab, Oxus, Afghan Turkistan, June 12.

102. ANAS CREECA, Linn.

1. ♂ Chahar Shamba, Maimanah, Jan. 25.
2. ♀

103. ANAS PENELOPE, Linn.

1. ♂ Maruchak, Murghab, Herat, March 15.

104. FULIGULA CRISTATA, (Linn.).

1. Chahar Shamba, Maimanah, Feb. 20.

105. *FULIGULA NYROCA*, (Güld.).

- | | | | |
|------|-----|----------------------------|-----------|
| 1. ♂ | 2 ♀ | Kila Wali, Murghab, Herat, | March 5. |
| 3. ♂ | | Maruchak, Badghis, ditto, | March 16. |

106. *CLANGULA GLAUCION*, (Linn.).

- | | | |
|------|---------------------------|-----------|
| 1. ♀ | Chahar Shamba, Maimanah | Feb. 12. |
| 2. | Maruchak, Murghab, Herat, | March 15. |
| 3. ♂ | Ditto ditto, | March 20. |

107. *ERISMATURA LEUCOCEPHALA*, Scop.

- | | | |
|----|-----------------------------|-----------|
| 1. | Maruchak, Afghan Turkistan, | March 21. |
|----|-----------------------------|-----------|

108. *MERGUS ALBELLUS*, (Linn.).

- | | | |
|------|-------------------------------|----------|
| 1. ♂ | Adult, Maimanah, | Feb. 10. |
| 2. ♂ | jno. Chahar Shamba, Maimanah, | Feb. 12. |
| 3. ♀ | Ditto ditto, | Feb. 17. |

No. 1 is in fine black and white plumage.

109. *TADORNA VULPANSER*, Flem.

- | | | |
|----|-------------------------|------|
| 1. | Oxus, Afghan Turkistan, | Feb. |
|----|-------------------------|------|

110. *CASARCA RUTILA*, Pall.

- | | | |
|----|--------------------------------|-----------|
| 1. | Karawal Khana, Murghab, Herat, | April 10. |
|----|--------------------------------|-----------|

VII.—*On the Species of Loranthus indigenous to Perak.*—By GEORGE KING, M. B., LL. D., F. L. S., *Superintendent of the Royal Botanic Garden, Calcutta.*

[Received 29th March 1887 ;—Read 4th May 1887.]

Prior to the date of the punitive expedition which was despatched to Perak some years ago, that province was practically an unknown country. One of the results of the expedition just mentioned was the location in the state of a British Resident. And as the office of Resident has, fortunately for the interests of science and civilization, been held, almost from its first institution, by Sir Hugh Low, we are now in possession of the materials for obtaining some knowledge of its natural history. During the past few years considerable botanical collections have been accumulated by the Rev. Father Scortechini (now, alas ! no more) who collected on behalf of the Perak Government, and by Mr. H. H. Kunstler, who collected for the Calcutta Botanic Garden. From the materials brought together by these gentlemen and which have come



Sculy, J. 1888. "VI.—on the Mammals and Birds." *The journal of the Asiatic Society of Bengal* 56(I), 68–89.

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