This article was downloaded by: [University of Cambridge]
On: 23 December 2014, At: 02:25
Publisher: Taylor & Francis
Informa Ltd Registered in England and Wales Registered Number:
1072954 Registered office: Mortimer House, 37-41 Mortimer Street,
London W1T 3JH, UK

Annals and Magazine of Natural History: Series 8

Publication details, including instructions for authors and subscription information:
<http://www.tandfonline.com/loi/tnah14>

XL.—On mammals from central Asia, collected by Mr. Douglas Carruthers

Oldfield Thomas

Published online: 09 Sep 2009.

To cite this article: Oldfield Thomas (1912) XL.—On mammals from central Asia, collected by Mr. Douglas Carruthers , Annals and Magazine of Natural History: Series 8, 9:52, 391-408

To link to this article: <http://dx.doi.org/10.1080/00222931208693148>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly

or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

**XL.—On Mammals from Central Asia, collected by
Mr. Douglas Carruthers. By OLDFIELD THOMAS.**

(Published by permission of the Trustees of the British Museum.)

DURING the summers of 1910 and 1911 Mr. Douglas Carruthers made, in company with two friends, Messrs. J. H. Miller and M. P. Price, an extended collecting-tour through the mountainous region of Central Asia. Commencing at Minusinsk, on the Upper Yenisei, shortly after leaving the Siberian Railway, the party worked through the Syansk Mountains into N.W. Mongolia, then through the Tannu-ola Mts., the Altai, the Barlik Mts., N.W. Dzungaria, along the Thian Shan chain eastwards to the interesting Hami Mts., then back to the Muzart Valley and Kuldja. Lastly, *viâ* Yarkand and the Karakoram, the party travelled to India, and so home to England.

The whole of this great region, down at least to Yarkand, was previously almost entirely unrepresented in the small mammal department of the British Museum, so that the fine collection made by Mr. Carruthers, and now acquired by the Museum, is therefore of the utmost value and interest. Quite a considerable number of the forms have proved to be new, and all are most desirable accessions, greatly increasing our knowledge of the fauna of this little-known part of the world.

It is impossible to speak too highly of the care and enthusiasm devoted by Mr. Carruthers to the making of this collection, which is throughout of the high standard to which his previous work has accustomed us. About 180 specimens are contained in it, belonging to 48 species, the high proportion of species being due to the varied regions through which the party passed and to their seldom stopping long enough in any place to obtain really large series of single species.

Five species and subspecies belonging to this collection were described by me in the 'Annals' for December 1911, one has been described by Mr. G. S. Miller in America, and ten new forms are now named, making a total of sixteen novelties obtained during Mr Carruthers's expedition.

A previous collection made by Mr. Carruthers in Turkestan was worked out in the 'Annals' in 1909*.

* Ann. & Mag. Nat. Hist. (8) iii. p. 257 (March 1909).

1. *Sorex araneus borealis*, Kashtsch.

♂. 173; ♀. 162. Syansk Mts., 100 miles W. of Lake Baikal.

2. *Sorex centralis*, Thos.

♂. 178, 179, 181; ♀. 180. Syansk Mts., 101 miles W. of Lake Baikal. 4000-7000'.

Described Ann. & Mag. Nat. Hist. (8) viii. p. 758 (1911). No. 180 (12. 4. 1. 6) the type.

3. *Crocidura ilensis*, Mill.

♀. 231. Steppe S. of Tarbagatai Mts., Dzungaria. 1000'.

4. *Talpa* (? *suschkini*, Kashtch.).

♀. 152, and separate skull no. 157. 100 miles S.E. of Minusinsk, Upper Yenisei. 1000'.

In his work on W. Siberian Insectivora Prof. Kashtchenko puts "*var. suschkini*" for a Sayanow specimen which is said to agree with *T. altaica* in all respects except that the eye and its aperture are minute. This character being quite valueless, and no other particulars being mentioned, it is impossible to be certain whether the present specimens, which differ from *altaica* in the size of their teeth, are really referable to *suschkini*, but it seems advisable provisionally to put them under that name.

5. *Martes zibellina*, L.

♂. 184; ♀. 183. Skulls only. Tapsa Mts., N.W. Mongolia.

Found in a fur-hunter's hut.

A comparison of these skulls with some from Kamchatka indicates that the peninsula animal ought certainly to be distinguished from the Siberian on account of its greater size. It should be called *M. asiaticus*, the material used in Brandt's paper on "*Mustela zibellina*, *var. asiatica*"*, having been mainly Kamchatkan, and the original of pl. i. having been from that country. If this name were put aside as synonymous with *zibellina* itself, some more unsuitable name from the same paper (e. g. *ochraceus* or *maculatus*) would have to be adopted.

* Mém. Ac. St. Pétersb. (6) ix. Sci. Nat. vii. p. 1 (1855).

6. *Putorius larvatus michnoi*, Kashtch.

♂. 187. Kemtchik Valley, Tannu-ola Mts. 2500'.

♂. 200. Kunderlun Plateau, Atchit Nor, N.W. Mongolia. 8300'.

Described by Kashtchenko * as a variety of *P. evermanni*, but evidently a race of, if not identical with, *P. larvatus*, Hodgs., the Tibetan polecat.

7. *Sciurus vulgaris calotus*, Hodgs.

♂. 177; ♀. 165. Syansk Mts., 100 miles W. of Lake Baikal. 1500'.

♂. 227. Kran Valley, Great Altai. 4000'.

Or *S. v. martensi*, Matsch., which was based on Midden-dorf's description of the squirrel of the Lower Yenesei.

8. *Eutamias asiaticus*, Pall.

♂. 153, 155; ♀. 151, 156. 100 miles S.E. of Minnusinsk, Yenisei. 1000'.

9. *Citellus evermanni*, Brandt.

♂. 150. Minnusinsk, Upper Yenisei. 800'.

♂. 185. Kemtchik Valley, Tannu-ola Mts., N.W. Mongolia. 3000'.

♂. 194, 195, 196. S. side, Tannu-ola Mts. 7000'.

♀. 206. Mts. W. of Atchit Nor, N.W. Mongolia. 5500'.

♂. 303. Ala-tau Mts., N.W. Dzungaria. 7000-8000'.

10. *Citellus carruthersi*, sp. n.

♂. 279, 280, 281, 283; ♀. 277, 278, 282, 293 (and separate skulls, 266, 267). Barlik Mts., S. side, N.W. Dzungaria. 5000-7000'.

Like *C. erythrogenys*, but much smaller and with only five pairs of mammae.

General characters of *erythrogenys*. Size very much smaller. Colour above pale mottled isabella, the shoulders paler grey than the back. Head-markings as in *erythrogenys*, the supraorbital reddish lines clearer reddish, or rather ochraceous, not so dark as in *erythrogenys*. Under surface broadly washed with dull buffy whitish. Hands and feet cream-buff. Tail buffy, the hairs above more or less ringed with black. Mammæ 5 pairs only instead of 6.

* Ann. Mus. St. Pétersb. xv. p. 271 (1911).

Skull in general character quite the same as in *erythro-genys*, with the same widely expanded zygomata, but considerably smaller throughout.

Dimensions of the type (measured in flesh) :—

Head and body 197 mm.; tail 42; hind foot 34; ear 8.

Skull: greatest length 45.2; condylo-incisive length 42; zygomatic breadth 30.4; nasals 16.5×6.8 ; interorbital breadth 8.3; posterior breadth on tympanics 24; palatilar length 22.6; diastema 10.5; palatal foramina 2.8; upper tooth series exclusive of small premolar 9.2.

Hab. as above.

Type. Young adult female. B.M. no. 12. 4. 1. 34. Original number 282. Collected 19th June, 1911.

This Barlik souslik may have been included by other authors under *C. erythro-genys*, but a comparison of Mr. Carruthers's very uniform series with some specimens from Biisk, obtained and presented by Mr. J. H. Miller in 1908, shows at once that there are two members of the group, differing both in size and the number of their mammæ.

The original *erythro-genys* of Brandt was first described as from the Altai (Gebler), and later on the Alai River was mentioned as its habitat. This river runs into the Ob at Barnaul, and is not far from Biisk, so that our specimens from the latter place may be provisionally accepted as typical.

I have named this distinct species in honour of its discoverer, Mr. Carruthers, to whose hard work and enthusiasm the present fine collection is due.

11. *Marmota centralis*, Thos.

?♂. 228. Kran Valley, Great Altai. 2300'.

♀. 291. Barlik Mts., N.W. Dzungaria. 7300'.

♂. 300, 301, 302. Ala-tau Mts., N.W. Dzungaria. 6500–7000'.

12. *Dyromys milleri*, sp. n.

♀. 255. Bogdo-ola Mts., S.E. Dzungaria. 5000'. 9th May, 1911. B.M. no. 12. 4. 1. 43. *Type.*

Near *D. angelus*, but with more rounded brain-case and smaller bullæ.

Size rather less than in *D. angelus*. General colour above wood-brown tinged with fulvous, more fulvous on crown; greyer on sides. Under surface broadly washed with cream-buff, the edges of the upper colour more strongly buffy. Top of muzzle greyish white, cheeks cream-buff, sharply defined;

black facial streak well developed, extending from in front of the eye to the outer base of the ear. Ears pale brown. Upper surface of hands and feet whitish or slightly buffy. Tail rather greyer than the body, dull drabby above, buffy below, its tip apparently regenerated in the type.

Skull, as compared with that of *D. angelus*, shorter and proportionally broader, the brain-case of the round and inflated shape found in *D. robustus*, Mill. Muzzle short, little tapering; nasals nearly parallel-sided, scarcely narrowing backwards. Interorbital region short-waisted, the edges square but not ridged. Brain-case peculiarly rounded. Palatal foramina longer than in *angelus*. Bullæ higher and more inflated, but shorter antero-posteriorly.

Dimensions of the type (measured in flesh):—

Head and body 94 mm.; tail (? perfect) 65; hind foot 20; ear 17.

Skull: greatest length 28; condylo-incisive length 25.2; zygomatic breadth 16.8; nasals 8.3×3 ; interorbital breadth 4.2; breadth of brain-case 14; combined height of brain-case and bullæ 11.4; palatilar length 9.8; diastema 6.9; palatal foramina 4; upper tooth-series 4.1.

Hab. & Type as above.

This pretty dormouse is most nearly allied to *D. angelus* from the western end of the Thian Shan, but is distinguished by its shorter and proportionally broader skull, its large rounded brain-case, and its short but high bullæ. I have named it in honour of Mr. J. H. Miller, its actual captor, to whose help and companionship Mr. Carruthers has been so largely indebted.

"In elm-forest in valley bottom." The specimen was being carried off by a crow, which dropped it on being shot at.

13. *Meriones erythrourus aquilo*, subsp. n.

♀. 249. 100 miles E. of Gu-tschen, S.E. Dzungaria. 4000'. 1st May, 1911. B.M. no. 12. 4. 1. 44. *Type*.

♀. 254. Bogdo-ola Mts., S.E. Dzungaria. 4000'.

A Dzungarian representative of *M. e. eversmanni*, less closely similar to true *erythrourus*.

Size comparatively large, larger than in *M. e. eversmanni*. General colour above more drabby than in the other forms, *eversmanni* being rather and *erythrourus* much more sandy or buffy. Under surface with a greater amount of slaty at the bases of the hairs, and therefore less strongly white than in either of the other races. Hind feet cream-buff, white in

eversmanni. Tail with more black in it than in the other forms, the top more or less mixed with black to the base, and even the sides and lower surface with an intermixture of black hairs.

Skull as in the largest specimens of *erythrourus*, larger than in any of our Samarkand series of *eversmanni*. Interparietal more developed in its antero-posterior diameter, its transverse extent being about the same as in *erythrourus*. Bullæ very large, decidedly larger than in *eversmanni*.

Dimensions of the type (measured in the flesh):—

Head and body 145 mm.; tail 144; hind foot 35; ear 19.

Skull: greatest length 42·5; condylo-incisive length 37·6; zygomatic breadth 33; length of nasals 16·5; interorbital breadth 6·7; interparietal 6×8 7; palatal foramina 7·7; greatest horizontal diameter of bulla 15·5; upper molar series 5·8.

Hab. & Type as above.

I can find no previous record of the occurrence of a gerbil of the *erythrourus* type east of the central mountain-system of Asia; but there is no doubt that the present animal is allied to that form, though it may be considered as representing a special subspecies of it. The Transcaspian *M. eversmanni* I should also regard as a third subspecies of the Afghan form.

14. *Meriones* near *kozlovi*, Sat.

♂. 238. Tur-kul Plateau, Hami Mts., Chinese Turkestan. 7000'.

The type locality of *M. kozlovi* is the Lower Kobdo.

15. *Rhombomys opimus giganteus*, Büchn.

♂. 233 (immature). Hami, N.E. Chinese Turkestan. 2500'.

♀. 260, 261, 262. Manass R., Central Dzungaria. 1200'.

♂. 296; ♀. 294, 295. Barlik Mts. S., N.W. Dzungaria. 5000'.

Type locality Ebi-Nor, W. Dzungaria, the specimens from the Barlik Mts. being therefore almost topotypical.

"*Gerbillus*" *turfanensis* and "*G.*" *opimus nigrescens* are two further members of this group described by Dr. Satunin from localities by no means very distant from the present. The evidence of Mr. Carruthers's series does not appear to increase the probability of these being distinct.

16. *Mus pachycercus*, Blanf.

- ♂. 245. Tur-kul, N. Hami Mts., N.E. Chinese Turkestan. 6000'.
 ♀. 253. Bogdo-ola Mts., S.E. Dzungaria. 3000'.
 ♀. 319. N.E. of Aksu, Thian-Shan. 5000'.
 ♂. 320. 100 miles S.E. of Yarkand. 4000'.
 ♂. 321, 322. Karakoram Mts., N. side. 7000'.

17. *Apodemus*. sp.

- ♂. 257. Bogdo-ola Mts., S.E. Dzungaria. 6000'.
 ♂. 263. Manass R., Central Dzungaria. 900'.
 ♀. 299. Ala-tau Mts., N.W. Dzungaria. 2000'.
 ♂. 312, 314; ♀. 311, 313. Muzart Valley, Thian Shan. 8500'.
 ♀. 318. N.E. of Aksu, Thian Shan. 5000'.
 ♂. 385; ♀. 323, 324. Karakoram Mts. (N. side), Chinese Turkestan. 8000'.

It is impossible to be certain of the species of these mice without far more material. Some of them may be referable to *A. tscherga*, Kashtchenko, and others to *A. sublimis*, Blanford.

18. *Cricetulus phæus*, Pall.

- ♂. 232. Zairan Nor, Dzungaria. 5000'.
 ♂. 234. Hami, N.E. Chinese Turkestan. 3000'.
 ♂. 246, 247, 248. E. of Gu-tschen, S.E. Dzungaria. 4000'.
 ♂. 297. Ala-tau Mts. S., N.W. Dzungaria. 2000'.
 ♂. 326-329. Karakoram Mts. (N. side), Chinese Turkestan. 8000-9000'.

The relationship of *C. fulvus*, Blanf., to *C. phæus* needs further investigation.

19. *Eutamias (Craseomys) rufocanus latastei*, All.

- ♂. 160, 170, 175, 176; ♀. 161. Syansk Mts., 100 miles W. of Lake Baikal. 1500-2200'.

These specimens agree closely with Kamtchatkan examples representing Allen's *E. latastei*, but do not seem to be more than subspecifically separable from the Scandinavian *E. rufocanus*. The species occurs in Kashtchenko's list of Tomsk Mammalia under the latter name.

20. *Evotomys glareolus saianicus*, Thos.

♂. 158; ♀. 163, 172 (young). Syansk Mts., 100 miles W. of Lake Baikal. 1600'.

Described Ann. & Mag. Nat. Hist. (8) viii. p. 759 (1911).
No. 163 (B.M. no. 12. 4. 1. 85) the type.

21. *Evotomys rutilus*, Pall.

♂. 164. Syansk Mts., 100 miles W. of Lake Baikal. 1600'.

22. *Arvicola terrestris*, Linn.

♀. 159. Syansk Mts., 100 miles W. of L. Baikal. 1500'.

23. *Microtus œconomus*, Pall.

♂. 166, 167, 168; ♀. 169. Syansk Mts., 100 miles W. of Lake Baikal. 2000'.

24. *Microtus arvalis*, Pall.

♂. 273, 274, 276; ♀. 265, 270, 272, 275. Barlik Mts. S., N.W. Dzungaria. 5000–7000'.

♀. 298 (young). Ala-tau Mts. S., N.W. Dzungaria. 2000'.

♀. 304. Tekes Valley, Thian Shan. 6500'.

Judging by Büchner's figure of the skull, *M. evermanni*, Pol., would seem to be either this or a related form, and not a *Stenocranius*.

Allied to *M. arvalis*, and from a locality quite close to the present, is my recently described *M. ilæus*, easily distinguishable by its much larger skull.

25. *Microtus agrestis mongol*, Thos.

♂. 188. Kemtchik Valley, Tannu-ola Mts., N.W. Mongolia. 4200'. B.M. no. 12. 4. 1. 102. *Type*.

Described Ann. & Mag. Nat. Hist. (8) viii. p. 759 (1911).

26. *Microtus arcturus*, sp. n.

♀. 269. Barlik Mts. S., N.W. Dzungaria. 6000'. 17th June, 1911. B.M. no. 12. 4. 1. 103. *Type*.

A large brown vole like *M. agrestis*, but with additional prisms on both m^1 and m^2 , as in *M. sikimensis*.

Size rather exceeding that of the larger forms of *M. agrestis*,

slightly less than in *M. sikimensis*. Fur of medium length; hairs of back about 9–10 mm. in length (summer). General colour above near broccoli-brown, not of such a warm tone as in *M. agrestis mongol*. Under surface washed with pale drab. Hands and feet dull whitish. Tail pale brown above, whitish below, the two colours not sharply contrasted.

Skull on the whole like that of a large *M. agrestis*, high, with well-marked angles and a long waist. Lateral pits of posterior palate large, deep, the septum between them reduced to a mere linear ridge. Bullæ fairly large, rather larger than in European *agrestis*, decidedly smaller than in *M. a. mongol*, much larger than in *M. sikimensis*.

Teeth on the whole as in *M. agrestis*, the extra prism on m^2 well developed, but, as in *M. sikimensis*, there is also an extra postero-internal angle on m^1 , though rather smaller than in that species. M^3 , in the single specimen, almost exactly as figured by Blasius in his *M. "campestris"* (fig. 208, p. 375), a rudimentary fourth external angle similarly present, and no doubt equally variable. M_1 also about as in "*campestris*," though the three elements of the anterior trefoil are more nearly shut off from each other.

Dimensions of the type (measured in flesh):—

Head and body 109 mm.; tail 44; hind foot 18·5; ear 13.

Skull: condylo-basal length 26·8; condylo-incisive length 27·5; zygomatic breadth 15·5; length of nasals 7·5; posterior breadth on lips of meatus 13; height of muzzle 4·7; palatilar length 14·2; diastema 8; palatal foramina 5·7; upper molar series (crowns) 6·5.

Hab. & Type as above.

This species is no doubt a member of the *agrestis* group, but shows an interesting approximation to *M. sikimensis* by possessing an extra cusp on m^1 as well as on m^2 , no other true *Microtus* being known in which both cusps are present. It has, however, nothing of the peculiar coppery colour of *M. sikimensis*, and its bullæ are much larger than is the case in that animal.

The Chinese *M. millicens*, also with an extra cusp on m^2 , as in *M. agrestis*, is in all other respects quite a different vole, and in no way nearly allied to the present species.

27. *Microtus (Stenocranius) tianshanicus*, Büchn.

♂. 210. Great Altai, eastern slopes (Suok). 7000'.

♂. 221. Great Altai East (Chagan Kol). 8000'.

♂. 222, 223. Great Altai West (Kran Valley). 8000'.

♂. 284 ; ♀. 285, 286, 287, 288 (young). Barlik Mts. S., N.W. Dzungaria. 6000'.

The Altai specimens are rather smaller than examples from the Thian Shan, with which the Barlik specimens agree.

There is, however, a puzzling variation in size in the skulls of the members of this group, and much further material will be needed before the species can be satisfactorily distinguished.

28. *Microtus socialis*, Pall.

♂. 230. Steppe south of Tarbagatai Mts., Dzungaria. 2000'.

29. *Alticola worthingtoni*, Mill.

♀. 258. Bogdo-ola Mts., S.E. Dzungaria. 6000'.

♂. 315, 316, 317. S. Muzart Valley, Thian Shan. 7000'.

The Muzart Valley is close to the original locality of the species, the Kok-su Valley, Thian Shan. The Bogdo-ola Mts. are some 500 miles further eastwards in the latter chain.

All the specimens agree closely with the typical series.

30. *Alticola* sp., Miller.

♂. 327, 328, 330, 331, 332, 333, 334. Karakoram Mts., N. side, Chinese Turkestan. 9000–10,000'.

Mr. Gerrit Miller has been good enough to examine the specimens of *Alticola* obtained by Mr. Carruthers on the Karakoram Mts., and finds them to be a distinct species allied to *A. albicauda*. No. 333 (B.M. no. 12. 4. 1. 120) is the type.

31. *Lagurus luteus*, Eversm.

♂. 251 ; ♀. 252. E. of Gu-tschen, S.E. Dzungaria.

The occurrence of this interesting species in Dzungaria gives a striking instance of the penetration of Kirghiz species into Chinese territories through the gap in the mountain-chain just south of the Tarbagatai range.

It appears to me that the *Lagurus* group is amply worthy of separate generic rank, its general characters, lemming-like appearance, and especially its peculiar m_3 making it readily distinguishable from all other voles.

And, further, I would separate as a special subgenus the American members of the group from the Old World ones, on the ground of their rather less lemming-like form, longer tails, and the possession of only four prisms in m_3 . This subgenus might be called *Lemmiscus*, with *Lagurus* (*Lemmiscus*) *curtatus*, Cope, as its type, the other known species being *L. pauperrimus*, Cooper, and *L. pallidus*, Merr.

32. *Lagurus lagurus altorum*, subsp. n.

♀. 271. Barlik Mts., N.W. Dzungaria. 6000'. 17th June, 1911. B.M. no. 12. 4. 1. 123. Type.

♀. 305, 306. Tekes Valley, Thian Shan. 6000'.

Size rather larger and colour greyer than in true *lagurus*.

Colour above between smoke-grey and drab-grey, the three specimens all much greyer than examples of *lagurus* from the Lower Volga and Ural. Below buffy whitish. Dorsal lines well marked.

Dimensions of the type (measured in flesh) :—

Head and body 100 mm.; tail 14; hind foot 15; ear 5.

Skull: condylo-basal length 24·2; condylo-incisive length 24·1; zygomatic breadth 14·7; nasals, length 6·5; inter-orbital breadth 3·1; palatilar length 12·7; diastema 7·1 palatal foramina 13; upper molar series (crowns) 6.

Hub. & Type as above.

All the striped lemming-voles of the high lands of Central Asia will probably be found to belong to this greyish form, the true *lagurus* being a native of the flat regions westward as far as the Lower Volga.

33. *Lemmus obensis*, Bts.

♂. 174. Syansk Mts., 100 miles W. of Lake Baikal. 2200'.

34. *Ellobius tancrei*, Blas.

♂. 216, 217, 218, 220; ♀. 219. Chagan Kol Valley, Great Altai. 7000'.

♂. 224, 225, 226. Kran Valley, Great Altai West. 2900'.

35. *Ellobius albicatus*, sp. n.

♂. 235; ♀. 236. S.E. Hami Mts., N.E. Chinese Turkestan. 6000'.

Like *E. tancrei*, but the whitening of the sides and belly even more prominent. Skull larger throughout.

Size rather larger than in the Altai specimens of *E. tancrei*. Fur very fine and soft; hairs of back (March) about 7·8 mm. in length. Face darkening, well marked, slightly more so than in *E. tancrei*. Buffy colour of upper surface about as in *E. tancrei*, but its extent more restricted, confined absolutely to the back, the line of demarcation passing along high up on the sides. Sides and under surface broadly washed with whitish, more strikingly contrasted than in other species. Tail rather more prominent than usual, its hairs blackish.

Skull on the whole similar to that of *E. tancrei*, but larger throughout, the zygomata more widely expanded. Interparietal narrow, strap-shaped. Supraoccipital edge directly transverse, not bowed forwards in centre. Anteorbital foramina more open than in *tancrei*, the space between them greater, and their outer edges more slanted outwards.

Incisors large and heavy, their points slightly less thrown forwards than in *E. tancrei*. Molar series longer. M^3 complicated, as in *E. tancrei*, exceeding Büchner's fig. 11 in this respect.

Dimensions of the type (measured in flesh) :—

Head and body 131 mm.; tail 20; hind foot 23.

Skull: condylo-basal length 33; condylo-incisive length 35; zygomatic breadth 24; nasals 8·7; interorbital breadth 5·6; interparietal 1·9 × 6; distance between outer corners of anteorbital foramina 10·6; palatilar length 18·2; diastema 11·7; palatal foramina 4·1; upper molar series, crowns 7·7, alveoli 8·2.

Type. Old female. B.M. no. 12. 4. 1. 136. Original number 236. Collected 27th March, 1911.

This fine *Ellobius* may be distinguished from its only close ally, *E. tancrei*, by its size and the other characters given above. Its locality is rather peculiar, as the Hami Mts. are at the eastern end of the Thian Shan chain, which is elsewhere inhabited by quite a different form, while the allied *E. tancrei* occupies the western end of the widely separated Altai chain.

36. *Ellobius cœnosus*, sp. n.

♂. 307, 308, 309, 310. Muzart Valley, Thian Shan. 8000'.

A large species with muddy-coloured underside and squared interparietal.

Size large, alone exceeded—and that but slightly—by *E. albicatus*. Hairs of back about 8 mm. in length. General colour above deep buffy; sides and under surface washed

with dull soiled buffy, conspicuously different from the whitish tone occurring in *E. tancrei* and *albicatus*. Facial darkening medium, less extended than in *E. fusciceps*. Tail quite short, its longer hairs buffy.

Skull large, rounded. Anteorbital foramina narrow, their outer edges more vertical than in *E. albicatus*. Interparietal more nearly square than in other species, their antero-posterior diameter greater and their transverse less. Palatal foramina rather shorter than in *E. albicatus*.

Incisors heavy, thrown forward as in *E. tancrei*, more so than in *E. fusciceps*. Molar series rather shorter than in *E. albicatus*. M^3 fairly uniformly of the shape and complexity shown in Büchner's figures 9 to 11.

Dimensions of the type (measured in flesh):—

Head and body 120 mm.; tail 15; hind foot 21.

Skull: condylo-basal length 33.6; condylo-incisive length 35.6; zygomatic breadth 24; nasals 9; interorbital breadth 6; interparietal 3.3×6.5 ; distance between outer corners of anteorbital foramina 9.5; palatilar length 18.5; diastema 12; palatal foramina 3.2; upper molar series, crowns 7.5, alveoli 8.1.

Type. Adult male. B.M. no. 12. 4. 1. 139. Original number 309. Collected 31st August, 1911.

Its dark-coloured under surface and squared interparietal will distinguish this *Ellobius* from *E. albicatus*, the only other species which equals it in size.

Two examples from the Tekes Valley, which opens into the Muzart Valley, collected by K. Wache in 1904, also seem to be referable to *E. cænosus*, though their interparietals are not quite as in Mr. Carruthers's series. No doubt it will be found to be widely spread over the western part of the Thian Shan.

37. *Ellobius fusciceps ursulus*, subsp. n.

♂. 290; ♀. 289, 292. Barlik Mts. (S. side), N.W. Dzungaria. 7000'.

Similar to true *fusciceps* in essential characters, but the general colour decidedly darker, the back "broccoli-brown" scarcely tinged with buff, instead of the uniform pale "pinkish buff" of the Samarkand form. Under surface also more muddy coloured.

Skull apparently not differing in any important respect from that of *fusciceps*, though the incisors are perhaps a little stouter, looking disproportionately heavy for the size of the skull.

Dimensions of the type (measured in flesh) :—

Head and body 102 mm.; tail 14; hind foot 21.

Skull: condylo-basal length 30·2; condylo-incisive length 32·5; zygomatic breadth 21·6; interparietal $2\cdot4 \times 7\cdot4$; palatilar length 16·3; upper molar series, crowns 6·7.

Hab. As above.

Type. Old male. B.M. no. 12. 4. 1. 141. Original number 290. Collected 23rd June, 1911.

In spite of the considerable difference in locality, I can find no cranial difference of importance between the Barlik *Ellobius* and that of Samarkand. But the colour-difference is so uniformly constant throughout the two series that I think it should be recognized by giving a special name to the present form.

Besides those obtained by Mr. Carruthers, the following two forms of *Ellobius* would seem to deserve description :—

Ellobius kashtchenkoi, sp. n.

Size almost as in *E. talpinus*. Colour dark, essentially as in the darker specimens of *E. cænosus*. Head not heavily blackened. Back dull cinnamon, sides rather more buffy; under surface washed with "wood-brown."

Skull, although smaller, shaped about as in *E. cænosus*, the interparietal similarly extended antero-posteriorly, though its anterior edge is more evenly convex forwards.

Molar series much shorter than in *E. cænosus*. *M*^s small, quite simple, cylindrical or with a slight concavity only on its inner side.

Dimensions of the type (measured in skin) :—

Head and body 110 mm.; hind foot 21.

Skull: condylo-basal length (c.) 30·5; gnathion to basilar suture 24·5; zygomatic breadth 21·6; nasals 7·6; inter-orbital breadth 5·2; interparietal $4 \times 7\cdot8$; palatilar length 16·6; diastema 11; palatal foramina 3·7; upper molar series, crowns 6·5, alveoli 7·2.

Hab. Lokotj, 60 kil. west of Smeinogorsk, Tomsk Government, Siberia.

Type. Young adult male. B.M. no. 9. 9. 1. 7. Collected 12th June, 1900. Received in exchange from the Tomsk Museum.

This species is externally very similar to *E. cænosus*, but is at once distinguished by its shorter tooth-row and its simple *m*^s, which is less complicated than in other Central Asian *Ellobius*.

I have named it in honour of Prof. N. Th. Kashtchenko, of the Tomsk Museum, to whose kindness we are indebted for the specimen and in whose many valuable papers so much of our knowledge of Central Asian small mammals is contained.

Ellobius talpinus transcaspice, subsp. n.

Size and other essential characters of true *talpinus*, but the colour markedly bicolor as in *tancrei* and *albicatus*, the sides and under surface washed with white. Head scarcely darkened.

Skull as in *talpinus*. M^3 between Büchner's figures 4 and 5.

Dimensions of the type (measured in skin) :—

Head and body (c.) 103 mm.; hind foot 21·5.

Skull: nasal tip to back of interparietal 24; zygomatic breadth 20·7; nasals 7·5; interorbital breadth 6; interparietal $3 \times 6\cdot6$; palatilar length 15; diastema 10·2; upper molar series (crowns) 6·8.

Hab. Transcaspia. *Type* from "Sultan-Bent." A second specimen obtained by the same collector at Aschabad.

Type. Adult female. B.M. no. 94.8.7.16. Collected by T. Barey. Received in exchange from the Branicki Museum, Warsaw.

The Transcaspian *Ellobius* has the characteristic contrasted bicolor coloration of *E. tancrei*, with the cranial and dental characters of *E. talpinus*. Eversmann's *E. rufescens* would seem to be simply the rufous Astrachan form of *talpinus*, the sides and under surface not specially whitened. From *E. intermedius*, Scully (if different from *E. fuscocapillus*, Blyth), it is distinguishable by its less complicated m^3 .

38. *Sicista betulina*, Pall.

♂. 154. 100 miles S.E. of Minusinsk, Upper Yenisei. 1000'.

♂. 182. Syansk Mts., 100 miles west of Lake Baikal. 4000'.

39. *Jaculus telum*, Licht.

♀. 264. Barlik Mts., N.W. Dzungaria. 2500'.

40. *Allactaga saltator*, Eversm.

♂. 209 (young adult). Suok, eastern slope, Great Altai. 7500'.

41. *Allactaga elater dzungarica*, subsp. n.

♀. 250 (old). 100 miles east of Gu-tschen, S.E. Dzungaria. 4000'. 1st May, 1911. B.M. no. 12. 4. 1. 148.
Type.

Similar to true *elater*, as represented by specimens from Djarkent, but darker in colour, the dorsal area approximately "drab," not pale buffy as in *elater*. Under surface more washed with buffy.

Incisors more slender and rather more thrown forward than in *elater*. Bar below anteorbital foramen much narrower. Palate with the posterior palatal foramina much larger, extending from the middle of m^1 to the back of m^2 , the transverse bridge separating them from the anterior foramina consequently much narrower. Other cranial characters as in *elater*.

Dimensions of the type (measured in flesh) :—

Head and body 87 mm.; tail 164; hind foot 52; ear 34.

Skull: occipito-nasal length 27; condylo-incisive length 26.2; zygomatic breadth 20; breadth of brain-case 15.5; vertical thickness of lower anteorbital bar 1.3 (1.8 in *elater*); palatilar length 14.6; anterior palatal foramina 5.5; posterior palatine foramina 2.2; bridge between them 1.3; upper tooth series, exclusive of premolar, 4.2.

Hab. & Type as above.

42. *Ochotona dauurica altaica*, Thos.

♂. 205; ♀. 201, 203. Atchit Nor, N.W. Mongolia. 4500'.

♂. 211, 213; ♀. 212, 214. Suok, E. slopes of Great Altai. 7000'.

No. 205 (B.M. no. 12. 4. 1. 149) the type.

Described Ann. & Mag. Nat. Hist. (8) viii. p. 761, December 1911.

43. *Ochotona macrotis*, Günth.

♀. 335, 336. N. side of Karakoram Mts., Chinese Turkestan. 13,000–14,000'.

44. *Ochotona (Ogotoma) pricei*, Thos.

♀. 207, 208. Mts. W. of Atchit Nor (Kobdo Basin), Mongolia. 6700'.

♂. 215. Suok, eastern slope of Great Altai. 8000'.

No. 208 (B.M. no. 12. 4. 1. 159) the type.

Described Ann. & Mag. Nat. Hist. (8) viii. p. 760, December 1911.

At Mr. Carruthers's suggestion this distinct Pika has been named in honour of his companion Mr. M. P. Price.

45. *Ochotona (Ogotoma) hamica*, sp. n.

♂. 242, 243, 244. ♀. 239, 240, 241. N. Hami Mts., eastern end of Thian Shan range, Chinese Turkestan. 7500'.

Size as in *O. pallasi*. General colour above of head and body uniform pale drab, decidedly paler than Ridgway's "drab," but not quite his "écru-drab." Under surface broadly washed with paler drab, more or less tinged on neck and middle line of chest with buffy. Ears drab, a tuft at their notch whitish drab; their proectote brownish, rest of ectote slaty greyish; entote drab, with a brown line passing along parallel to the edges, which latter are whitish. An indistinct cream-buff patch behind each ear. Rump tinged with pinkish buff. Hands and feet cream-buff, tending towards pinkish buff on the centre of the metapodials.

Skull very similar to that of *O. pallasi*, but the posterior nasal region is broader, the nasals being more parallel-sided, the interorbital region is not so remarkably constricted, the palatal bridge is narrower, and the bullæ are larger. The auditory meatus is also larger; but the type of *pallasi* is not quite perfect in this respect, so that the difference, if any, cannot be judged with accuracy.

Dimensions of the type (measured in flesh):—

Head and body 179 mm.; hind foot 33 (range 32·5–34); ear 23.

Skull: occipito-nasal length 50·5; condylo-incisive length 47·3; zygomatic breadth 25; nasals 16·7; least breadth between anteorbital foramina across back of nasals 7·2; interorbital constriction 4·1; parietal breadth 20·2; greatest posterior breadth, on tympanics 25·5; palatilar length 19·2; palatal foramina 9; breadth of palatal bridge 1·8; upper cheek-tooth series (alveoli) 9·9.

Hab. as above.

Type. Adult male. B.M. no. 12. 4. 1. 163. Original number 243. Collected 5th April, 1911.

In this animal, of which Mr. Carruthers has sent an excellent and remarkably uniform series, it is almost possible to identify the *Ochotona pallasi*, Gray (*Lagomys ogotoma*, Waterh.), which, based on B.M. no. 45. 4. 21. 5, still remains a stumbling-block to the worker in this group, owing to its having no exact locality.

But the Hami Pikas differ so constantly from it in the cranial characters above described, that they clearly cannot be referred to it; and as there is no indication of intergradation I cannot now call *hamica* a subspecies of *pallasi*, although this may possibly prove hereafter to be the proper relative position of the two forms.

Externally I can find no difference between the two animals which might not be explainable as due to the deteriorated condition of the type.

Mr. Carruthers informs me that there are no Pikas in the main Thian Shan range, and from the decided Altai relationship of the Hami Mts. in other respects, I think it probable that, when certainly identified, *O. pallasi* will prove to be an inhabitant of the Altai area.

46. *Ochotona (Pika) alpina*, Pall.

♂. 189, 190, 191; ♀. 192, 193. Tannu-ola Mts., N.W. Mongolia. 6000-8000'.

♂. 197, 198, 199. Kunderlun Mts., Atchit Nor, N.W. Mongolia. 8000'.

These specimens agree very well with an example from Tyeichta, on the Katun R., W. Altai, received from the Tomsk Museum, and nearly a topotype of the species.

47. *Ochotona (Pika) hyperborea*, Pall.

♂. 182* (skull only). Syansk Mts., W. of L. Baikal. 5000'.

The animal belonging to this skull measured:—

Head and body 155 mm.; hind foot 25; ear 18.5.

48. *Lepus* sp.

♀. 204. Atchit Nor, N.W. Mongolia. 4500'.

♂. 229 (and extra skull). Upper Black Irtysh R., E. Dzungaria. 1000'.

♂. 256. Bogdo-ola Mts., S.E. Dzungaria. 6000'.

XLI.—*Three small Mammals from S. America.*

By OLDFIELD THOMAS.

Vampyrops zarhinus incarum, subsp. n.

General characters as in true *zarhinus*, with which it shares the small separated incisors and all other characters of importance; but size markedly less, the skull smaller in all