

but also in several other Oriental Potamonidæ—I find it in *Potamon* (*Potamonautes*) *cunicularis* and in *P.* (*Parathelphusa*) *tridentatum*, but not in African species referred to these two subgenera,—and the clue thus afforded might, if followed up, lead to results important for the classification of the family.

EXPLANATION OF PLATE LXVIII.

- Fig. 1. *Gecarcinus ingrami*, male, from above, natural size.
 2. " " " " anterior part of body, seen from in front.
 3. " " " " larger chela, from the outer side.
 4. " " " " third maxilliped.
 5. " " " " abdomen.

7. The Duke of Bedford's Zoological Exploration in Eastern Asia.—XI. On Mammals from the Provinces of Shan-si and Shen-si, Northern China. By OLDFIELD THOMAS, F.R.S., F.Z.S.*

[Received December 15, 1908.]

The collection dealt with in the present paper is a continuation of that described in the last part (*suprà*, p. 635), which contained a certain number of Shan-si Mammals, collected up to February 1908. After despatching that series Mr. Anderson, now accompanied by Mr. A. de C. Sowerby, an English resident in Shan-si, commenced work again immediately after starting from Tai-Yuen-Fu, whence he moved westwards and southwards, across the Hoang-ho, down to Yen-an-fu, in Shen-si. He then turned northwards again, crossed the Great Wall at the south-eastern corner of the Ordos Desert, which I had asked him to visit, and from there worked back again to the centre of Shan-si, where, except for the interesting topotypical series of *Eutamias asiaticus senescens*, picked up on the way to Peking, the collecting of this set came to an end.

The collection as a whole is of extreme interest and value as being the first we have received from the far eastern edge of the inland desert area of Central Asia. It therefore gives us the exact Eastern limit on this latitude of certain of the Central Asian desert forms, such as *Meriones*, *Dipus*, and *Ochotona*, while in other cases it shows the effect that this raised desert area has on such forms as have penetrated to it from the lower country still further east to the coast. This effect is mainly in a general paling of colour, without alteration in structure, only one species †,

* [The complete account of the new species described in this communication appears here; but the names and preliminary diagnoses of those underlined were published in the 'Abstract,' No. 63 (Dec. 15, 1908).—EDITOR.]

† The Hedghog.

in the sense that I use that term, representing here a different one from further east, all the others being what I should term locally modified subspecies.

Besides these modified subspecies of the coast forms, there are of course several interesting new species in the collection, notably the beautiful little desert Hamster which I have named after the Duchess of Bedford, and the curious Vole *Microtus inez*. In all twelve new forms are described in the present paper (see footnote p. 963).

So far Mr. Anderson has made magnificent use of the Duke of Bedford's generosity, the amount and completeness of his collections already almost equalling those made during the Rudd exploration of S. Africa, and the results obtained being equally epoch-making both for our knowledge of Eastern Asian Mammalia, and for the improvement of our National Museum. Japan, from Saghalien to Yaku-shima, Tsu-shima, Korea, and Quelpart, and the chief areas of North-eastern China, have now all been visited in turn, and such collections made as to multiply a hundredfold our knowledge of the mammals of the region and to form a really sound basis for further work on the subject.

No such complete and systematic survey has ever been made in Eastern Asia before, and for this fine service to Science zoologists have to thank the generosity of our President.

Mr. Anderson gives me the following note on the characteristics of Shan-si and Shen-si, the two provinces dealt with in the present paper :—

“The provinces of Shan-si and Shen-si are quite different in character. The former may be briefly described as a mountainous country with occasional large upland plains. Some peaks in Shan-si rise above 10,000 ft., and are massive rocky mountains with only a comparatively thin coating of loess soil. Where the loess figures mostly is in the plains, of which that of Tai-Yuen-Fu, that of Ta-Tung-fu, and that of Hsiu-clou are the best examples. The streams of Shan-si flow only in the rainy season, with the exception of the larger rivers. Northern Shen-si, on the other hand, is a region of loess hills of almost uniform height; the skyline of Shen-si, seen from the mountains of its eastern neighbour, is a straight line declining very gradually as it passes from north to south. The portion of Shen-si visited appears indeed like an extension of the plateau of which Ordos is part, only this extension has been cut into by a great many perennial streams, a process which is now taking place in southern Ordos.”

1. MYOTIS sp.

♂. 1875. Pao-teh-chow, Shan-si. 3500'.

A very old specimen with worn teeth. Related to *M. mystacinus*.

“Bats were very rare throughout the area visited, this being the only one seen.”—*M. P. A.*

2. *ERINACEUS MIODON*.

Thos. Abstr. P. Z. S. 1908, p. 44 (Dec. 15).

♂. 1846, 1853, 1855, 1856, 1857, 1862, 1869, 1871, 1873. Yu-lin-fu, Shen-si. 4000'.

A pale-brown species allied to *E. dealbatus* Swinhoe; no wholly white spines intermixed with the brown-ringed ones. P^3 much smaller than in *E. dealbatus*.

Size about as in *E. dealbatus*. Spines of back about 22–24 mm. in length, white for two-thirds their length, then broadly ringed with blackish brown, the ring about 4 mm. in breadth, the terminal 3–4 mm. white (or the very extreme point darker again, but not enough to affect the general tone). No wholly white spines present. The resulting general colour* of the whole animal is near "drab." Ears well haired. Head, sides, limbs, and tail varying from dull whitish, or brownish white, to distinctly brown ("broccoli-brown"), the colour of the hairy part being evidently a character of little value. Belly always lighter, sometimes quite white.

Skull of about the same general proportions as in *E. dealbatus*. Zygomata rather more abruptly expanded anteriorly. Premaxillæ extending backwards in a narrow point, which in most cases reaches a forwardly projecting point of the frontals, thus completely cutting off the maxillæ from the nasals; in two cases, however, the premaxillary and frontal points do not reach each other, so that there is a short naso-maxillary suture, and it is evident that the details of these sutures should only be used with very great caution as distinguishing characters. In the four specimens that I refer to *E. dealbatus* there is a long naso-maxillary suture.

Teeth at once distinguishable from those of *E. dealbatus* by the conspicuously smaller size of p^3 , and in a lesser degree of p_3 and the upper and lower canines. P^3 forms a nearly equal-sided triangle, its greatest diameter rarely exceeding 2 mm., while in *E. dealbatus* it is much broader than long, its transverse diameter being 3.4 mm. (in the type) and upwards.

Dimensions of the type, measured in the flesh:—

Head and body 215 mm.; tail 42; hind foot 40 (range from 35); ear 34.5.

Skull—condylo-basal length 53 mm.; greatest breadth 36; nasals 14.5 (diagonally) \times 3; interorbital breadth 18; palatal length 29; front of i^1 to back of m^3 27.

Hab. as above.

Type. Adult male. B.M. No. 9.1.1.9. Original number 1871. Collected 11 May, 1908.

This Hedghog looks externally very like Swinhoe's *E. dealbatus*,

* Even so speckled an animal as a Hedghog, when seen far off, may be said to have a "general colour" resulting from the intermingling of all the colours on the surface, and it is in this sense that I always use the term when describing mammals. Some writers speak of "general colour" for what I should term "ground-colour," a very different thing.

but is readily distinguishable by the much smaller size of p^3 . In this respect Swinhoe's Chefoo example, and the two obtained in the same place by Mr. Anderson, closely agree with the type of *E. dealbatus*; and so far as our material goes I should not consider Prof. Matschie's *E. tschifuensis* distinct from Swinhoe's species, especially as the present series shows how variable the characters of the nasal sutures may be. The Chefoo specimens have from 10 to 20 per cent. of their spines wholly white, such spines being in *E. miodon* conspicuous by their absence.

Dr. Satunin* has described two Hedghogs from Chingan and Ussuri respectively, but both have many white spines mixed with the dark ones. He makes no reference to the earlier described and evidently closely related *E. orientalis* Allen†, from Vladivostok, the describer of which in turn ignores *E. dealbatus* Swinhoe.

"There appear to be large areas in North China where the Hedghog is not found at all, and some places, of which the neighbourhood of Yu-lin-fu is one, where they are remarkably common. At the time we were at Yu-lin (April to May) the neighbouring desert was alive with several species of beetle upon which the Hedghog fed.

"The Hedghog seemed to be unknown in the vicinity of Pauteh-chow, Shan-si, but at Ning-wu-fu we heard reports of them, though we saw none ourselves.

"Chinese name, 'Tsi-wei' ‡ (*tsi*- a thorn or spine)."—*M. P. A.*

The British Museum also contains another Hedghog from Shen-si Province, collected by Father Hugh, and this again seems distinct from any hitherto described. It may be called

ERINACEUS HUGHI.

Thos. Abstr. P. Z. S. 1908, p. 44 (Dec. 15).

A very dark-coloured, finely speckled species, quite unlike any of the other Chinese Hedghogs. Spines light basally as in *E. miodon*, but the dark ring is much broader, and is followed by quite a narrow light ring, only about 0.5 to 0.8 mm. in length, the point for about the same length being again dark. As a result the whole animal is very dark with a fine whitish ticking, and has quite a different appearance to the broadly washed whitish of the other species. Head, limbs, and belly brown.

Hind foot of type 38 mm.

Hab. Paochi, Shen-si.

Type. Adult female. B.M. No. 0.6.27.2. Presented and collected by Father Hugh.

The only species which this Hedghog might have been referred to is *E. hanensis* Matsch., but I owe to the courtesy of Prof. Matschie some spines from the type of that animal, and these show quite a marked difference in the general coloration,

* Ann. Mus. Pétersb. xi. pp. 170-173, 1907.

† Bull. Amer. Mus. xix. p. 179, 1903.

‡ For the Chinese names given in this paper we are indebted to Mr. A. de C. Sowerby.

the bases of the spines being dark where they are white in *E. hughi*, while the terminal 3 mm. of the spines are light horn-colour without a dark tip. The coat is also liberally mixed with wholly white spines, which are practically absent in *E. hughi*.

3. *FELIS CATUS* L. (*domestica* auct.*).

1866 (skin without skull). Ordos near Yu-lin-fu, Shen-si.

A remarkably fine long-haired Cat, with a considerable resemblance to a European Wild Cat. These cats are said to be common in Northern China.

4. *CANIS LUPUS TSCHILIENSIS* Matsch.

♂. 1699. Yen-an-fu, Shen-si. 3000'.

This Wolf would appear to represent Prof. Matschie's *Lupus tschiliensis*.

"Uncommon. Much feared by the Chinese goat and sheep herders.

"Chinese name, 'Lang'."—*M. P. A.*

5. *VULPES VULPES* subsp.

♀. 1666. 30 miles W. of Fen-chou-fu, Shan-si. 4500'.

"Common. Much hunted by the Chinese for the sake of its skin.

"Chinese name, 'Hu-li' or 'Hu-tzi'."—*M. P. A.*

6. *MARTES FLAVIGULA BOREALIS* Radde.

♂. 1704, ♀. 1703 (native skins without skulls). ♂. 1727 (skull only). Yen-an-fu, Shen-si. 3000'.

The fine skull no. 1727 agrees closely in dimensions with Radde's specimens, and is very considerably larger than an old male skull of *M. f. kuatunensis* Bonh.

"Rather common, its tracks often seen.

"Chinese name, 'Hwang-yao'."—*M. P. A.*

7. *MELES LEPTORHYNCHUS* M.-Edw.

♀. 1870. Yu-lin-fu, Shen-si. 4000'.

Although Yu-lin-fu is in the direction of the region where Prof. Matschie's *Meles hanensis* and *siningensis* were procured, I fail to see any reason why this Badger should not be referred to Milne-Edwards's species, which was described from Peking.

"While difficult to capture the Badger is not a particularly uncommon animal, as I have seen its tracks numbers of times both in Shan-si and Shen-si.

"Chinese name, 'Huan-tzi'."—*M. P. A.*

8. *SCIUROTAMIAS DAVIDIANUS* M.-Edw.

♂. 1654. ♀. 1655, 1656. 15 miles N.W. of Fen-chou-fu, Shan-si.

* Cf. Pocock, P. Z. S. 1907, p. 149.

♂. 1720, 1824. ♀. 1716, 1722. Near Yen-an-fu, Shen-si. 3800'.

♀. 1981. 20 miles S.W. of Ning-wu-fu, Shan-si, 6600'.

"So far always found living among the rocky precipitous sides of canyons where bushes are plentiful and some trees exist. Nowhere common. One of their foods is the kernel of the wild peach.

"This squirrel has cheek-pouches like those of Chipmunks."—*M. P. A.*

9. *EUTAMIAS ASIATICUS SENESCENS* Mill.

♂. 2004, 2005, 2006, 2007. ♀. 2008. Mon-tou-ko, 15 miles W. of Peking. 500'. *Topotypes*.

This interesting series of topotypes, which Mr. Anderson obtained at my special request, and those next following, form a most valuable addition to our collection of Asiatic Chipmunks and have enabled me to gather a general idea of their local characteristics.

In the first place, it appears evident that none of the forms other than the original *E. asiaticus* can be properly called species, as all grade into one another, each series varying to a certain extent, and overlapping the members of the next. All seem to be in fact members of one widely distributed species, modified by local conditions, and one sees no sign of what is often found in North America, where representatives of quite distinct species may be found taking each other's place in neighbouring localities. Of course in N. America a much greater richness in different types is present to be drawn upon, while here all are modifications of *E. asiaticus*.

These main modifications appear to be four in number, so far as we yet know:—(1) The sharply defined black and white five-lined *asiaticus* of Russia and Siberia; (2) a more rufous form inhabiting Saghalien, Hokkaido, the Amur region and Korea, to which the names of *uthensis*, *lineatus*, and *orientalis* are assignable; (3) the grey-mantled *senescens* of the Peking region, which passes through an intermediate link into (4) the desert form, found on the western edge of Shan-si and in northern Shen-si where it borders on the Ordos Desert.

10. *EUTAMIAS ASIATICUS ORDINALIS*.

Thos. Abstr. P. Z. S. 1908, p. 44 (Dec. 15).

♂. 1798, 1799, 1803, 1830, 1867, 1872. ♀. 1804, 1874. Yu-lin-fu, Shan-si. 4000'.

♂. 1888, 1941. ♀. 1887. Mts. 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

A pallid, semi-desert race allied to *E. a. senescens*.

Colour much paler throughout than in *senescens*. Crown paler and more approaching pinkish buff; shoulders and nape with almost no grey in them, scarcely more grey-grizzled than the

cream-buff cheeks and sides; rump more or less ochraceous-buff, markedly brighter than in *senescens*, where it is "raw umber"; dark dorsal stripes lightened in intensity by their hairs being largely tipped with ochraceous; their porportionate lengths as in *senescens*.

Dimensions of the type, measured in the flesh:—

Head and body 139 mm.; tail 125; hind foot 39; ear 19.5.

Skull—greatest length 41 mm.

Hab. of type. Yu-lin-fu, Shen-si. 4000'.

Type. Adult female. B.M. No. 9.1.1.36. Original number 1804. Collected 1 May, 1908.

"Live in low bushes, not climbing trees.

"Not until the latter part of April, about the time we reached Yu-lin-fu, did the weather become warm enough to attract the Chipmunks from their holes. They frequent the sides of the loess gullies mostly, and are usually fairly common where found at all. Besides the places where specimens were collected, two were seen at Pao-teh-chow, and, I believe, from the people's accounts, that they occur at Yen-an-fu. Mr. Sowerby states that Chipmunks are common near Tai-Yuen-Fu.

"A large proportion of Chipmunks, wherever we found them, had their tails broken short."—*M. P. A.*

It is only in accord with the usual order of things that the Chipmunks of the country edging the Ordos Desert should reflect their surroundings by being markedly paler than their allies near Peking. So great is the difference indeed that an intermediate link in the series might suitably have a special subspecific name, as follows:—

11. *EUTAMIAS ASIATICUS INTERCESSOR.*

Thos. Abstr. P. Z. S. 1908, p. 44 (Dec. 15).

♀. 1971, 1972, 1998, 2002. Ning-wu-fu, Shan-si. 6000.

♂. 1984, 1987, 1992, 1993. ♀. 1982, 1985, 1986, 1989, 1990, 1991. 20 miles S.W. of Ning-wu-fu. 6000'.

Intermediate in intensity of colour between the dark grey-mantled *senescens* and the pallid *ordinalis*. Ground-colour of shoulders light greyish, more grizzled than in *ordinalis*, less than in *senescens*; cheeks and sides buffy. Rump darker in tone than in *ordinalis*, but in this respect nearer that form than *senescens*, the general colour near clay-colour. Proportions and intensity of dorsal stripes about as in *senescens*, though the dark ones are rather more numerously grizzled with ochraceous.

Dimensions of the type, measured in the flesh:—

Head and body 145 mm.; tail 133; hind foot 30; ear 19.

Skull—greatest length 42 mm.

Hab. of type. Ning-wu-fu, Shen-si. 6000'.

Type. Adult female. B.M. No. 9.1.1.42. Original number 1972. Collected 14 June, 1908.

With 7 authentic examples of *senescens* before me, with 14 of

this intermediate form, and 11 of the desert *ordinalis*, I have felt justified in indicating their respective degrees of differences by subspecific names. All are of course members of the widely spread species *E. asiaticus*, with the eastern *uthensis* type of which the Imperial Tombs specimens mentioned in a previous paper tend to connect the true *senescens*.

The country in which this Chipmunk is found is mountainous and broken, while *E. a. ordinalis* inhabits the flat region bordering the sandy Ordos.

12. CITELLUS MONGOLICUS M.-Edw.

♂. 1731. Ching-pien, N.W. Shen-si. 5100'.

♂. 1738. ♀. 1734, 1746. Ordos Desert, N.W. of Ching-pien. 4900'.

♂. 1747, 1851, 1863, 1864, 1868. ♀. 1748, 1858, 1865. Yu-lin-fu, Shen-si. 4000'.

These specimens agree closely in their general sandy coloration with Milne-Edwards's figure of *mongolicus*, and with the example obtained by Swinhoe near Suen-hwa-fu in 1863,* which may be accepted as a topotype, for David collected a number of his "Mongolian" specimens at this latter place, which is below, not on, the true Mongolian plateau.

On the other hand, our Mongolian plateau specimens, both those collected by Mr. C. W. Campbell at Hara Ussu in 1898, and by Mr. Anderson at Taboul in 1907 †, are so markedly darker in colour that they might be recognized as a special plateau subspecies as follows:—

CITELLUS MONGOLICUS UMBRATUS.

Thos. Abstr. P. Z. S. 1908, p. 44 (Dec. 15).

Size and proportions as in true *mongolicus*. Colour much darker and greyer, speckled with blackish and buffy, so as to result in a tone rather darker than Ridgway's "isabella." Crown near broccoli-brown, markedly darker and less fawn than in *mongolicus*. Under surface broadly washed with buffy, lips and chin white. Sides of neck, front of forearms, and back of lower legs more strongly suffused with tawny or tawny ochraceous than in *mongolicus*, in which the colour is sandy or buffy. Tail-hairs much shorter than in *mongolicus*, though this is probably a seasonal character, cream-buff at their bases and tips, their middles black, none of the strong ochreous-buff colour showing on the upper side; below the middle line is ochraceous buff, but far narrower and less conspicuous than in *mongolicus*.

Dimensions of the type, measured in flesh:—

Head and body 197 mm.; tail 62; hind foot 37.

Skull—greatest length 46.3 mm.; basilar length 37; zygomatic breadth 28; length of upper tooth-series 10.

* See P. Z. S. 1870, p. 445.

† See P. Z. S. 1908, p. 105.

Hab. Mongolian Plateau. *Type* from Taboul, about 100 miles N.W. of Kalgan. Alt. 5000'.

Type. Young adult male. B.M. No. 8.3.5.5. Original number 1499. Collected by M. P. Anderson, 1 August 1907, and presented by the Duke of Bedford, K.G.

The difference in general colour between *umbratus* and *mongolicus* might have been thought to be seasonal in its nature, as both Mr. Campbell's and Mr. Anderson's specimens of the former were collected in July and August, and the present series in April and May. But some of the latter have already got their summer pelage on the crown, while Mr. Swinhoe's topotypica example of *mongolicus* was killed in September.

From the region inhabited by Büchner's two species, *C. alashanicus* and *C. obscurus*, the Mongolian plateau is separated by the western parts of the range of *C. mongolicus*.

"Fairly common. Usually living in valley-bottoms, or in stretches of plain where more or less grass exists.

"Chinese name, 'Sa-hsu' = Sand-rat."—*M. P. A.*

13. MERIONES AUCEPS Thos.

♂. 1670, 1675, 1676, 1677, 1678, 1684, 1685, 1693, 1695.
♀. 1679, 1683, 1694, 1701, 1702. Yen-an-fu, Shen-si. 3000'.

♂. 1736, 1737. Ordos Desert, N. of Ching-pien, Shan-si, 4900'.

♂. 1878, 1880. ♀. 1877, 1881, 1882. Pao-teh-chow, Shan-si. 3500'.

♀. 1917, 1958. Mts. 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

♂. 1960. Ning-wu-fu. 6000'.

This handsome species, one of the discoveries of the present exploration, was described in my previous paper from a single specimen, so that this good series is very welcome. The skins are on the whole very uniform, with the exception that the tail is sometimes white below, prominently bicolor, and sometimes wholly ochraceous, all intermediate stages between the two being present.

It is possible that Milne-Edwards may have mixed up some specimens of *M. auceps* in his account of *M. psammophilus*, as the two species are so similar; but I have taken as representing his species the example unquestionably belonging to the smaller form, which he sent to the British Museum in 1867.

"One of the commonest mammals of North China. At Yen-an-fu they were abundant, burrowing in the farm fields; in the grassland north of Ching-pien they were also plentiful, but here they lived in the grassy plains, or in the bushy areas along the edges of the plains. This rodent was not found at Yu-lin-fu, and was comparatively rare near Ko-lan-chow, while at Ning-wu-fu I did not see them.

"Chinese name, 'Hwang-hsu' = Yellow rat."—*M. P. A.*

14. *MERIONES PSAMMOPHILUS* M.-Edw.

♂. 1652. ♀. 1653. Tai-Yuen-Fu, Shan-si. 2700'.

Distinguishable from *M. auceps* mainly by its smaller size, shorter tail, and smaller bullæ.

15. *MERIONES UNGUICULATUS* M.-Edw.

♂. 1739, 1740. ♀. 1741, 1742. Ordos Desert, N.W. of Ching-pien, Shen-si. 4900'.

This Gerbil is readily distinguishable from the other two Chinese species by its black claws, grey-based belly-hairs, and buffy instead of ochraceous tail. Mr. Anderson had previously obtained a good series of it at Taboul on the Mongolian plateau.

Its skull is very like that of *M. psammophilus*, but the bullæ are smaller, and do not abut on or overlap the hinder corners of the zygomata.

16. *MUS CONFUCIANUS LUTICOLOR*.

Thos. Abstr. P. Z. S. 1908, p. 45 (Dec. 15).

♂. 1689, 1698, 1710. Yen-an-fu, Shen-si. 3000'.

A pale race of *M. confucianus*, smaller and more delicately built than the Shantung *M. c. sacer*.

Size rather less than in *sacer*. Fur soft and fine, without spines. General colour above pale buffy (between cream-buff and buff of Ridgway) lined with brown along the dorsal area. Sides clearer buffy. Under surface and inner side of limbs pure, sharply defined, buffy white, whiter on the chin, more creamy on the belly. Ears large, pale greyish brown with white edges. Upper surface of hands and feet white. Tail well-haired, the scales being practically hidden, pencilled terminally, the hairs at the tip 6-7 mm. in length; brown above proximally, white terminally and below, the amount that is white varying from one-third to two-thirds the length of the tail.

Skull smaller and more delicately built throughout than that of *M. c. sacer*, the brain-case smoother and more rounded and the ridges less developed; palatal foramina shorter; bullæ rather larger; molars smaller.

Dimensions of the type, measured in the flesh:—

Head and body 130 mm.; tail 167; hind foot 27; ear 23.

Skull—greatest length 35.3 mm.; basilar length 27.4; greatest breadth 17; nasals 12.7; interorbital breadth 5.3; palatilar length 14.7; palatal foramina 6.5; upper molar series 5.6.

Hab. as above.

Type. Adult male. B.M. No. 9.1.1.92. Original number 1689. Collected 13 March, 1908.

This is a more or less desert form of the widely spread *M. confucianus*, smaller than *M. c. sacer*, paler coloured than the true *confucianus*.

“A rare animal in Shen-si, where we found it living in some rocky barren gullies. This rat is apparently not dependent on

cultivation; wherever I have found it, namely in Shantung, Chih-li, Shan-si, and Shen-si, it has lived in rocky places among trees and bushes."—*M. P. A.*

17. *MUS WAGNERI MONGOLIUM* Thos.

♀. 1663. 30 miles W. of Fen-chou-fu, Shan-si. 4500'.

♂. 1777. ♀. 1778. Yu-lin-fu, Shen-si. 4000'.

"Found in hill-side fields near Fen-chou-fu; at Yu-lin-fu common in fields upon the river-bank."—*M. P. A.*

18. *APODEMUS SPECIOSUS* subsp.

♂. 1705, 1706, 1707, 1718. ♀. 1709, 1719. Near Yen-an-fu, Shen-si. 3800'.

♂. 1893, 1894. 1895, 1900, 1912, 1926, 1927, 1937, 1938, 1943. ♀. 1901, 1902, 1910, 1928, 1939, 1940, 1957, 1959. Mountains 12 miles N.W. of Ko-lan-chow, Shen-si. 7000'.

♀. 1983, 1995. 20 miles S.W. of Ning-wu-fu, Shan-si. 6600'.

"This mouse is another form which seems not to depend on cultivation at all. It is found only in those rare spots in North China where trees and bushes are numerous. At Yen-an-fu it was only fairly common, but in the mountains 12 miles north-west of Ko-lan-chow we found this animal abundant."—*M. P. A.*

19. *APODEMUS AGRARIUS PALLIDIOR* Thos.

♂. 1657. 30 miles W. of Fen-chou-fu, Shan-si. 4500'.

♂. 1713. ♀. 1717. Near Yen-an-fu, Shen-si. 3800'.

♂. 1936. Mountains 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

Quite similar to the typical series from the Shantung Peninsula.

"In cultivated fields. Very rare in this part of China."—*M. P. A.*

20. *CRICETULUS TRITON INCANUS*.

Thos. Abstr. P. Z. S. 1908, p. 45 (Dec. 15).

♂. 1708, 1714. ♀. 1715, 1725. Yen-an-fu, Shen-si. 3000'

♂. 1898. ♀. 1945. Mountains 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

A paler, clearer grey race of the Shantung *C. triton* De Wint.

External characters as in true *C. triton* except that the colour is distinctly paler and more drabby (drab-grey) as compared to the darker "smoke-grey" *triton*; the head and fore back pale clear grey, "grey No. 3," markedly different from the comparatively dark grey of *triton*.

Skull essentially as in *triton*, but rather more delicately built the nasal region, interorbital space, and brain-case all slightly narrower.

Dimensions of two specimens, measured in the flesh:—

♂. Head and body 155 mm.; tail 85; hind foot 25; ear 21.

♀ (type) ,, 168 ,, ; ,, 98; ,, 24; ,, 21.

Skull of type—condylo-basal length 41 mm.; basilar length 36; zygomatic breadth 22·8; nasals 15·7; interorbital breadth 5·4; palatilar length 17·5; palatal foramina 7·2; length of upper molar series 5·1.

Another fully adult skull only measures 37·3 mm. in condylo-basal length, while an example of true *triton* reaches 39 mm. The type skull of *C. triton*, which has worn teeth, is only 33 mm. in the same measurement, so that members of this group evidently vary very much in the size that their skulls may attain to.

Hab. of type. 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

Type. Old female. B.M. No. 9.1.1.123. Original number 1945. Collected 3 June, 1908.

This is evidently a pale inland dry-country form of the coast *C. triton*.

"This large Hamster is rare. They usually reside under bushes at the edge of some farmfield from which they take their food. I have sometimes found green leaves in their pouches, but more often they carry some grain. Their clean-cut burrows usually descend vertically into the earth.

"Chinese name, 'Pan-Tsang-er.'"—*M. P. A.*

21. CRICETULUS ANDERSONI Thos.

♂. 1660, 1664. ♀. 1658, 1661, 1665. 30 miles W. of Fenchou-fu, Shan-si. 4500'.

♂. 1667, 1668, 1671, 1672, 1682, 1691, 1723. ♀. 1669, 1690, 1692, 1700, 1711, 1712, 1721. Yen-an-fu, Shen-si. 3000–3800'.

♂. 1883. ♀. 1876, 1879, 1884. Pao-teh-chow, Shan-si. 3500'.

♂. 1889, 1903, 1904, 1905, 1906, 1914, 1922, 1923, 1924, 1925. ♀. 1885, 1886, 1890, 1899. Mountains 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

♀. 1961. Ning-wu-fu, Shan-si. 6000'.

There is surprisingly little difference either in colour or length of fur between these summer specimens and those obtained by Mr. Anderson the previous winter, when he first discovered this well-marked little species.

"I consider the grey dwarf Hamster the most abundant mammal of Shan-si and Shen-si. It was common at all our collecting grounds within these provinces, with the single exception of Yulin-fu, where it seems not to exist. We failed to find it in Ordos also."—*M. P. A.*

22. CRICETULUS GRISEUS M.-Edw.

♀. 1815. Yu-lin-fu, Shen-si. 4000'.

23. CRICETULUS BEDFORDIÆ.

Thos. Abstr. P.Z.S. 1908, p. 45 (Dec. 15).

♂. 1757, 1758, 1773, 1774, 1775, 1801, 1805, 1806, 1808, 1823, 1831, 1842, 1843, 1844, 1854, 1860, 1861. ♀. 1731 (in

spirit), 1756, 1802, 1807, 1809, 1810, 1814, 1818, 1832, 1833, 1834, 1835, 1836, 1845, 1859. Yu-lin-fu, Shen-si. 4000'.

♀. 2003. Wu-chai, 23 miles W. of Ning-wu-fu, Shan-si. 6100'.

A small, very short-tailed species with completely hairy soles and pure white belly.

Size very small. Fur soft and fine, hairs of back about 9 mm. in length. General colour above drab-grey, becoming on the flanks and posterior back more distinctly drab ("ecru-drab," in some cases approaching "pinkish buff"). Whole of under surface, lower part of sides, all four limbs, and tail pure snowy-white, the line of demarcation, which runs from just below the eyes to the top of the base of the tail, well defined, more or less serpentine, convex upwards at the shoulders and hips, downwards on the flanks. A prominent white patch over each eye. Ears of medium size, their proectote dark brown, their metentote white; a whitish patch behind their posterior bases. Palms and soles completely covered with white hairs, except for a naked patch at the base of the pollex. Tail short and stumpy, about the length of the hind-foot, well-haired, completely white.

Skull smaller in all dimensions than that of *C. roborovskii*, apparently the nearest ally of the present species.

Dimensions of four specimens, taken in the flesh:—

♂ 1773.	Head and body	81 mm.	; tail	14	; hind foot	12	; ear	13.
♂ 1861 (type).	"	77	" ; "	12	"	12	" ; "	14.
♀ 1756.	"	77	" ; "	12	"	12	" ; "	14.
♀ 1807.	"	73	" ; "	11	"	11.5	" ; "	12.

Skull of type—greatest length 23.1 mm.; basilar length 18; greatest breadth 13.2; length of nasals 7.7; interorbital breadth 3.6; brain-case breadth 10.8; palatilar length 9.6; diastema 6.2; palatal foramina 3.9; upper molar series 3.1.

Type locality. Yu-lin-fu, Shen-si. 4000'.

Type. Old male. B.M. No. 9.1.1.165. Original number 1861. Collected 8 May, 1908.

This very beautiful little Hamster, which I have named in honour of the Duchess of Bedford, is most nearly allied to the Nan-Shan *C. roborovskii* Satunin,* with which it appears to agree in colour and structure. But it is very markedly smaller, the type of *C. roborovskii* (stated to be young) having a head and body length of 90 mm., and a larger skull throughout, the molar series being 3.8 mm. in length.

"The Desert Hamster is a common animal in the region of Yu-lin-fu, where it is found in the sandhills of the desert. I was unable to find the burrows of these animals, and it seems probable that the shifting sand closes their entrances as soon as the animal has passed through.

"One specimen, No. 2003, came from Wu-chai, Shan-si, a town

* Ann. Mus. Zool. St. Pétersb. vii. p. 571, 1902.

some 23 miles west of Ning-wu-fu, and situated upon a portion of the Mongolian Plateau which extends into Shan-si.

"The Desert Hamster eats millet very greedily.

"Chinese name, 'Mi-tsang-er' (Mi=millet)."—*M. P. A.*

24. *MICROTUS MANDARINUS* M.-Edw.

♂. 1907, 1918, 1929, 1950. ♀. 1908, 1951. Mountains 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

These specimens agree very fairly with Milne-Edwards's description, and with his type, which I have examined in Paris. The species was described from Chinese Mongolia, and its occurrence here in Shan-si is therefore quite natural.

These are the first examples of the true *M. mandarinus* that the Museum has received, those from Afghanistan previously referred to the species being undoubtedly different. The latter are members of the subgenus *Phaiomys*, and have the connection between the second and third enamel-space of the first lower molar which is characteristic of *Pitymys* and of true *Phaiomys*, and may in fact be taken as equally diagnostic of the latter. But if this be done, *Microtus brandti* and *mandarinus*, both of which have five closed triangles in m_1 , cannot be considered members of *Phaiomys*, and would either be referable to *Microtus*, in spite of their long fore-claws, or Lataste's subgenus *Lasiodomys*, founded on *M. brandti*, should be revived to contain them.

The following are flesh measurements of *M. mandarinus*:—

♂. Head and body 95 mm.; tail 23; hind foot 17; ear 7.

♀. " 90 " ; " 20; " 16; " 8.

"A rare thing: found only upon the mountain tops (7000 feet) among bushes and grass, or in open fields. Their burrows much resemble those of the 'gray dwarf hamster' (*C. andersoni*); we trapped dozens of hamsters in our endeavour to secure more of these voles."—*M. P. A.*

25. *MICROTUS (EOTHENOMYS) INEZ*.

Thos. Abstr. P. Z. S. 1908, p. 45 (Dec. 15).

♂. 1896, 1919, 1921, 1930, 1949, 1952, 1954, 1956. ♀. 1891, 1892, 1897, 1909, 1920, 1946, 1947, 1948, 1953, 1955. Mountains 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

A small pale-brown Vole with a certain skull-resemblance to *M. (Eothenomys) melanogaster*.

Fur soft and fine, hairs of back 8-9 mm. in length. General colour above a peculiar pinkish brown, rather browner than Ridgway's "fawn-colour," lined with darker brown on the head, and often rather paler on the fore-back. Under surface pale "wood-brown," the slaty bases of the hairs showing through. Ears about the length of the fur, not distinguishable by colour from the general tone. Upper surface of hands and feet dull whitish; fore claws slightly longer than hind; soles with 6 pads. Tail of

average length and hairiness, brown above, lighter below, not sharply contrasted. Mammæ 0—2=4.

Skull with a marked general resemblance in form to that of *M. melanogaster*, having the same unusually broad interorbital region, and smooth unridged surface with the angles and crests scarcely developed, not even the oldest specimen showing any trace of frontal crests. Palatal foramina medium. Posterior palate more complete than in that species, the lateral grooves reduced to small or minute disconnected foramina, the posterior border squarely transverse, running completely across to the molars; ridges bounding mesopterygoid fossa running above (dorsal to) this posterior border, and curving down to join it on its dorsal aspect. Bullæ of average size.

Teeth with the triangles tending throughout to be completely closed, thus contrasting with those of *M. melanogaster* in which they are mostly open. M^1 with the usual 5 spaces, 3 external and 3 internal salient angles, and m^2 with 4, 3 and 2 respectively, and each tooth with a tendency to the development of a small extra postero-internal angle, very different to the large extra angle of the allied form. M^3 narrow, rather elongate, with five separated spaces, three external and three internal salient angles, and a long posterior lobe. First lower molar normally with four closed triangles, and the partly open one in front of them joining the anterior trefoil, but this is sometimes also closed, making a fifth closed triangle. M_2 either without closed triangles, or the middle space separated into two.

Dimensions of four specimens, measured in the flesh:—

♂. Head and body	88 mm.	; tail	31	; hind foot	16	; ear	10.5.
♂. "	89	" ; "	33	" "	16	" "	11.
♀ (type) "	90	" ; "	35	" "	15.5	" "	11.
♀. "	88	" ; "	33	" "	16	" "	11.

Skull of type—greatest length 23.5 mm.; basilar length 20; zygomatic breadth 15.5; length of nasals 6.7; interorbital breadth 4.2; height of crown from front of alveolus of m^3 7.2; palatilar length 10.1; palatal foramina 4.1; length of upper molar series (crowns) 5.7.

Hab. as above.

Type. Adult female. B.M. No. 9.1.1.188. Original number 1892. Collected 28 May, 1908.

This interesting little Vole would appear to be most nearly allied to *M. (Eothenomys) melanogaster*, but differs strikingly in the closure of many of the dental triangles open in that animal. Its palate is also much more complete posteriorly, and its fore instead of its hind claws are slightly the longer.

In colour *M. inez* is also unique, its peculiar pinkish-brown colour being quite unlike that of any other Vole in the Museum collection; indeed, owing to its colour, it was mistaken for a "Redback" by Mr. Anderson.

"In the mountains N.W. of Ko-lan-chow, Shan-si, this Redback

was found rather common in the bottoms of certain narrow, wooded and bushy gullies. They, in company with *Apodemus speciosus*, burrow in the soft loose soil beneath the bush."—*M. P. A.*

26. *CRASEOMYS SHANSEIUS* Thos.

♂. 1931. ♀. 1932, 1933, 1934, 1935, 1942. Mountains 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

Practically topotypes of this striking species, described from Mr. Anderson's previous collection.

The summer fur is hardly shorter than that of winter, and is quite similar in colour and texture.

"Much less common than the last, but like it found in the bush-overgrown gullies and canyons."—*M. P. A.*

27. *MYOSPALAX FONTANIERI* M.-Edw.

♂. 1733. Ordos Desert, 8 miles N. of Ching-pien, Shen-si. 4900'.

♂. 1916. Mts. 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

♂. 1966, 1973, 1997. ♀. 1965, 1996, 2001. Ning-wu-fu, Shan-si. 6000'.

♂. 1988. ♀. 1980, 1994. 20 miles S.W. of Ning-wu-fu, Shan-si. 6600'.

These specimens all agree in possessing some evidence of the white face-markings figured by Milne-Edwards in his type, but believed by him to be inconstant. He may have mixed up with *M. fontanieri* examples of the next species, in which the white crown-streak is rarely present.

Specimens of the remarkable Mole-rats of this genus are exceedingly rare in Museums, so that this fine series of a species new to the Museum, and those next referred to form a most valuable accession to the Museum collection. In addition we have lately received from Mr. E. B. Howell some examples of *M. psilurus* M.-Edw., so that the Museum now possesses examples of every described species of the genus, including really good series of the two now obtained.

28. *MYOSPALAX CANSUS* Lyon.

Myotalpa cansus Lyon, Smiths. Misc. Coll. l. p. 134, 1907.

♀. 1729, 1730. Yen-an-fu, Shen-si. 3000'.

♂. 1794, 1795, 1800, 1811, 1816, 1817, 1819, 1821, 1828, 1838, 1849, 1850. ♀. 1751, 1791, 1796, 1797, 1812, 1820, 1822, 1827, 1837, 1839, 1840, 1841, 1847, 1852. Yu-lin-fu, Shen-si, 4000'.

This species differs from the last mainly in size, the largest skull, which agrees closely with the figure given by Mr. Lyon, being 45.3 mm. in condylo-basal length. Face-markings are less developed, only five out of 28 specimens having small frontal streaks, while the buffy nose-patch is small and often almost obsolete.

In this series there is a marked difference between the sexes, the male skulls being markedly larger, more rugged and heavily ridged than the female. Mr. Lyon had stated that his specimen was a female, but on my sending him a pair of the present series for comparison, he has been good enough to inform me that the male agreed precisely with the type, and that the latter was evidently wrongly sexed.

"This small rodent mole is rather common, for traces of it, old or new, may be found in nearly every field in those parts of Shan-si and Shen-si visited. It is, however, difficult to trap; we secured the present series chiefly by hiring peasants to dig the animals out and bring them to us. In walking on the surface of the ground the rodent mole turns the long claws of the fore-feet under the soles and walks upon the backs of the claws; they make but slow progress. When frightened or angered this animal utters a peculiar little squeal. We had many live ones in the course of our work at Yu-lin-fu and elsewhere, but did not find them inclined to be savage.

"Chinese name, 'Ha-whei' or 'Ha-lao.'"—*M. P. A.*

29. *DIPUS SOWERBYI* Thos.

♂. 1743, 1744. ♀. 1745. Ordos Desert, 30 miles W. of Yu-lin-fu, Shen-si. 4700'.

♂. 1750, 1752, 1753, 1755, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1768, 1770, 1771, 1772, 1776, 1782, 1783, 1784, 1785, 1787, 1788, 1789, 1792, 1824, 1825. ♀. 1749, 1754, 1767, 1786, 1793, 1826. Yu-lin-fu, Shen-si. 4000'.

Dipus sowerbyi was obtained by Mr. Sowerby at Yu-lin-fu and described in a special paper*. It is the first three-toed Jerboa discovered in the Far East, the five-toed *Allactaga mongolica* having been hitherto the only known Chinese Jerboa. Reasons for the separation of the genus *Dipus* from the earlier *Jaculus* are given in the paper quoted.

The species is probably characteristic of the Ordos Desert and its vicinity.

"Inhabits the sand-dunes."—*M. P. A.*

30. *ALLACTAGA MONGOLICA* Radde.

♂. 1978. Ning-wu-fu, Shan-si. 6000'.

"Inhabits the loess plain near Ning-wu-fu, where its tracks are fairly plentiful. On the plateau west of Ning-wu we saw tracks which were probably made by this animal, but we were unable to identify its burrow, and could not secure a second specimen."—*M. P. A.*

31. *LEPUS SWINHOEI* *SUBLUTEUS*.

Thos. Abstr. P. Z. S. 1908, p. 45 (Dec. 15).

♂. 1674, 1681, 1696. ♀. 1686. Yen-an-fu, Shen-si. 3000'.

* Ann. Mag. N. H. (8) ii. p. 307, 1908.

♂. 1735. Ordos Desert, N. of Ching-pien, Shen-si. 4900'.

♂. 1759 (young). Yu-lin-fu, Shen-si. 4000'.

A pale race of *L. swinhoei*.

General colour throughout, of head, body, and chest-band, much paler than in true *swinhoei*, near "pinkish-buff" of Ridgway, instead of the richer colour of *swinhoei*, which approaches "ochraceous buff." Sides of rump with a greater tendency to the development of grey patches. Other characters as in true *swinhoei*.

Dimensions of the type, measured in the flesh:—

Head and body 466 mm.; tail 91; hind foot 111; ear (from notch) 95.

Skull—greatest length 86.5 mm.; basilar length 70.

Type locality. Southern Ordos Desert.

Type. Adult male; B.M. No. 9.1.1.261. Original number 1735. Collected 14 April, 1908.

This Hare is a pale Ordos Desert race of *L. swinhoei*, which ranges in its normal form from Chefoo and Nanking westwards to Southern Shen-si. It unfortunately happened that the type specimen was darker than has since proved to be usual with Chefoo specimens, and deceived therefore by the description I gave of it in 1894, before any of Mr. Anderson's specimens had arrived, Prof. Matschie has recently distinguished a Hare from Hing-an-fu, Southern Shen-si, as *Lepus filchneri*. His description, however, quite fits Mr. Anderson's topotypical series from Chefoo, and I think there is no doubt *L. filchneri* should be referred to *L. swinhoei*.

I regret that Prof. Matschie should have been led into error by my description of what has since proved to be the abnormal colour of the typical specimens.

With regard to his *L. stegmanni* from Kiau-chow, I would note that a certain proportion of the specimens of *L. swinhoei*, otherwise indistinguishable, show the peculiar light speckling of the upper tail-surface which Prof. Matschie uses as a primary character. One example from Chefoo shows this very clearly, as does another from Tung-chow, E. of Peking.

Dr. Satunin has recently* described a number of Hares from Central Asia, but I cannot find any among them similar to this Ordos Hare. I note, however, that his *L. kozlovi*, from Kam, can hardly escape being the same as *L. sechuenensis* de Wint.†, almost from the same district, of which he makes no mention.

"This is the common Hare of China. Although specimens were taken at only two localities on our long journey, they were seen at all stages. They live generally wherever there is cover. In the Ordos, north-west of Ching-pien, and in the mountains near Kolan-chow they were exceedingly abundant.

"Chinese name, 'Tu-tzi.'"—*M. P. A.*

* Ann. Mus. St. Pétersb. xi. p. 162, 1906.

† P. Z. S. 1899, p. 576.

32. *OCHOTONA BEDFORDI*.

Thos. Abstr. P. Z. S. 1908, p. 45 (Dec. 15).

♂. 1673, 1680. ♀. 1687, 1688, 1697. Yen-an-fu, Shen-si. 3000'.

♂. 1915. ♀. 1944. Mountains 12 miles N.W. of Ko-lan-chow, Shan-si. 7000'.

♂. 1967, 1969, 1974, 1975, 1976, 1999. ♀. 1962, 1963, 1968, 1977, 2000. Ning-wu-fu, Shan-si. 6000'.

A Pika allied to *O. dauurica*, but with larger bullæ. Size rather larger than in *O. dauurica*. General colour above of summer specimens pale wood-brown, tending to ochraceous-buffy on the sides of the neck, the under surface approaching pinkish-buff. Winter specimens rather paler and greyer. Patches behind ears inconspicuous, ochraceous-buff; ears with their proectote black proximally paling to dull buffy terminally; metentote buffy; lips and chin white, without darker markings. Hands and feet creamy or buffy above, the long hairs of the palms and soles whitish brown.

Skull with the general characters of *O. dauurica*, the type of the subgenus *Ochotona* (see below), but larger, less strongly convex on the forehead, with the brain-case larger, broader, and running out to more definite postero-external angles, and the bullæ very markedly larger, perhaps the largest in the genus. Molars broader.

Dimensions of four specimens, measured in the flesh:—

♂. Head and body	192 mm.	hind foot	30	ear	19.
♂. "	192 "	"	31	"	19.
♀ (type). "	185 "	"	31	"	22.
♀. "	175 "	"	32	"	21.

Skull of type—greatest length 44.2 mm.; basilar length 36.6; zygomatic breadth 21; length of nasals 15; interorbital breadth 3.5; breadth of brain-case 17.4; palatal foramina 12.3; oblique diameter of bullæ in plane of basioccipital 13.5; length of upper tooth-series (alveoli) 8.5.

Type locality. Ning-wu-fu, Shan-si. 6000'.

Type. Adult female. B.M. No. 9.1.1.278. Original number 2000. Collected 23 June, 1908.

This Pika is very nearly allied to the Siberian and Mongolian *O. dauurica*, which it closely resembles in colour, but is distinguished by its rather larger size, much larger bullæ, and broader molars.

With regard to *Ochotona huangensis* Matsch., from Western Kan-su, Prof. Matschie has been good enough to send me the dimensions of its bullæ, and these appear closely to agree with those of *O. dauurica*, and are therefore markedly smaller than the unusually large bullæ of *O. bedfordi*.

I have named this fine and distinct species in honour of His Grace the Duke of Bedford, K.G., the importance of whose assistance in the exploration of Eastern Asia is indicated by the

fact that the type-specimen is No. 2000 of the Mammals collected during the Exploration.

"At Yen-an-fu we found these animals about a few bush-grown burying-grounds in the main valley. They proved to be very shy, for after trapping a few we suddenly found we could catch no more. My belief is that the remainder of the colony deserted the place. North-west of Ching-pien Mr. Sowerby found Pika-burrows again, but we secured no additional specimens till we reached Ko-lan-chow, Shan-si. In this locality we did not find them common, but in the vicinity of Ning-wu-fu they are fairly abundant. No. 2000, taken 23 June, contained four young with hair, and evidently about to be born.

"Chinese names: 'Ti-tu' = Ground-Hare (at Yen-an-fu); 'Hao-tu' = Rat-hare (at Ko-lan-chow)."—*M. P. A.*

In a previous paper* attention was called to the confusion which had followed from the giving of two names, *O. ogotona* and *O. dauurica*, to the same animal by Pallas; and it now appears that this confusion has further resulted in the naming of Mr. Lyon's subgenera † being inaccurate. The latter had assumed that the animal described by Waterhouse as *Lagomys ogotona* was really Pallas's species of that name, and consequently called the subgenus to which it belonged the typical *Ochotona* Link, based on Pallas's animal. As already noted, however, Pallas's *ogotona* was the same as his earlier *dauurica*, and this is one of the species assignable to Mr. Lyon's *Conothoa*, so that the latter name becomes a synonym of *Ochotona*.

The nomenclature of the subgenera would therefore appear to be as follows:—

1. OCHOTONA Link. Type, *O. dauurica* Pall.
Conothoa Lyon. „ *O. roylei* Og.
 (Incisive and palatal foramina united, open.)
2. PIKA Lac. 1799. Type, *O. alpina* Pall.
Lagomys G. Cuv. 1800 (nec Storr, 1780).
 Type, *O. alpina* Pall.
 (Incisive and palatal foramina separate. Frontal outline not abnormally bowed.)
3. OGOTOMA Gray, 1867. Type, *O. pallasi* Gray.
 (Incisive and palatal foramina separate. Frontal outline abnormally bowed.)
 The last-named also includes *O. ladacensis* Günth.

33. OCHOTONA SORELLA.

Thos. Abstr. P. Z. S. 1908, p. 45 (Dec. 15).

♀. 1979. 20 miles S. of Ning-wu-fu, Shan-si. 6600'. 10 June, 1908. B.M. No. 9.1.1.279. Type.

A very small species allied to *O. cansa* Lyon.

* P. Z. S. 1908, p. 109.

† Smiths. Misc. Coll. xlv. p. 438, 1904.

Size even smaller than in *O. cansa*. General colour brown, rather darker than Ridgway's "broccoli-brown," a lighter patch across the nape. Under surface rather lighter, soiled cream-buff, a more ochraceous-buffy area down the centre of the belly; the slaty bases to the hairs showing through; sides of neck more tawny. Ears blackish grey with white edges. Upper surface of hands and feet cream-buff, their thickly furred palms and soles slaty brownish.

Skull most like that of *O. cansa*, as figured by Lyon*, but the upper outline is more convex, the nasals are longer and narrower, the palatal foramina are more widely open, and the bullæ are markedly smaller.

Dimensions of the type, an adult female, measured in the flesh :—

Head and body 140 mm.; hind foot 27; ear 18.

Skull—greatest length 36·4 mm.; basilar length 29; greatest breadth 17; nasals $11\cdot8 \times 4$; interorbital breadth 4; breadth of brain-case 14; height of crown from alveolus of m^2 10·7; diastema 8; palatal foramina $8\cdot8 \times 4\cdot3$; diagonal length of bullæ 9·2; length of upper tooth-series (alveoli) 6·7.

Hab. and *Type* as above.

This little Pika belongs to the *O. pusilla* group, and is no doubt most nearly allied to Mr. Lyon's *O. cansa*, from Kan-su, of which the Museum possesses a specimen from the Province of Sze-chuen. It differs, however, in the skull-characters above detailed, and clearly cannot be referred to it.

"The single specimen was taken by Mr. Sowerby in a wood upon an abrupt hillside, where this, and probably another, had its burrow. The burrows, which were long and intricate, were subsequently dug up without another specimen being found. Examination showed No. 1979 to be an adult female, with the uterus indicating that young had recently been born, and the mammary glands secreting."—*M. P. A.*

* Smiths. Misc. Coll. l. pl. xv., 1907.



Thomas, Oldfield. 1908. "The Duke of Bedford's Zoological Exploration in Eastern Asia. - XI. On Mammals from the Provinces of Shan-si and Shen-si, Northern China." *Proceedings of the Zoological Society of London* 1908, 963–983.
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