

9. Catalogue of the Mammals of China (south of the River Yangtze) and of the Island of Formosa. By ROBERT SWINHOE, F.Z.S.

PRIMATES.

1. HYLOBATES, sp. (Gibbon.)

A species of black Gibbon is said by the Chinese to exist in the country west of Canton. It may be the same as the animal found in Hainan, which I have attempted to identify with the *H. pileatus*, Gray (see *ante*, p. 224). The British Museum has a young specimen of *Presbytes maurus* (Schreber), and an adult *Silenus veter* (Linn.), both presented by Mr. John Reeves, who brought them with him from China (see List of Mamm. Brit. Mus. 1843). But it is very doubtful indeed whether either of these species occurs within our limits; they were probably procured at Canton, whither merchant ships or junks had brought them. The evidence is not sufficient to justify our admitting them into the Chinese list of mammals. Friends who have travelled through forests in the mountains of the Fokien province have informed me that they have seen troops of monkeys in some places; but I have never had the good fortune to meet with any of these tree-monkeys.

2. MACACUS SANCTI-JOHNANNIS. (St. John's Monkey.)

*Inuus sancti-johannis*, Swinh. P. Z. S. 1866, p. 556.

This rock-monkey is found on most of the small islands about Hongkong, and is like a Rhesus with a very short tail. The young specimen taken alive by Commander St. John, R.N., on North Lena Island, did not live to maturity in the Gardens of the Society; and therefore it was not determined at home whether the species is really a valid one. Dried bodies of this animal split in two are often exhibited, hanging from the ceiling, in druggists' shops, in Canton and Hongkong; and its bones are used for medicinal purposes. Its closest ally is the Pig-tailed Monkey (*Macacus nemestrinus*, Is. Geoffr.) of Tenasserim; but it seems to me to be a distinct race.

3. MACACUS CYCLOPIS. (Formosan Rock-monkey.)

*Macacus cyclopis*, Swinh. P. Z. S. 1862, p. 350, pl. xlii.; 1864, p. 380; Selater, P. Z. S. 1864, p. 711 (woodcut).

The specimens that were living in the Society's Gardens have died, and are now mounted in the British Museum. These adults are strongly tinged on the upper parts with olive-green, freckled with darker colour.

The Rock-monkey of Hainan appears to be the ordinary *Macacus erythræus*. (See *ante*, p. 226.)

4. NYCTICEBUS TARDIGRADUS (Linn.). (Slow-paced Lemur.)

Has been brought alive from Canton, and presented to this Society Proc. Zool. Soc.—1870, No. XLII.

(P. Z. S. 1863, p. 375); is called in Chinese *Me-shuy*, and said to come from the south-west part of Kwangtung Province.

#### CHIROPTERA.

The Bats I procured during my last residence in China I submitted to Prof. W. Peters of Berlin, who has kindly supplied me with the names of those known, and with descriptions of the new species. In the following list Dr. Peters's notes are placed within inverted commas.

##### 5. "CYNONYCTERIS AMPLEXICAUDATA, Geoffroy." (Flying Fox.)

A female of this frugivorous Bat was brought to me at Amoy in May 1866. It was dead, but had a live young one still fastened to its breast. The young animal was more than a third the size of the mother, covered with soft fine hair on the upper parts, and nearly naked below; its colour was brown, like that of its parent, but did not show the nuchal band. I never saw but these two specimens.

##### 6. MEGADERMA LYRA, Geoffr. (Lyre-nosed Bat.)

A pair of this fine species were captured in an outhouse at Amoy. I have seen them of a summer's evening flying very high over the town of Amoy.

##### 7. "PHYLLORHINA AURITA, Tomes;" P. Z. S. 1859, p. 76. (Large-eared Leaf-nose.)

This Large-eared Leaf-nose is common at Amoy in May; and I have a good series of them. A smaller short-eared species I procured two of in the celebrated cave at Kelung (N. Formosa), and sent home in spirits (P. Z. S. 1864, p. 381).

##### 8. "PHYLLORHINA SWINHÖI, Peters, n. sp." (Swinhoe's Leaf-nose.) = *Ph. amigera*, *nov.*

"*Ph. maxima, auriculis acuminatis, apertura frontali parva, prosthemate ferro-equino multo angustiore, foveis quatuor insigni; cauda crure longiore; supra fusca vel fuliginosa, collo gastræoque pallidioribus.*

"This species is of the same size as, or still larger than *Ph. diadema*, Geoffr. (= *Ph. insignis*, Horsf.), but easily to be distinguished by the form of its upper nose-leaf, which is much narrower than the horseshoe and the middle nose-leaf.

	millims.
"Antibrachium .....	84-90
Tibia .....	30-36
Foot .....	20 "

A large number of these were taken in summer in a cave near Amoy.

##### 9. "MINIOPTERUS BLEPOTIS, Temminck;" Tomes, P. Z. S. 1858, p. 121. (Red-and-black Bat.)

A very abundant species in summer at Amoy, found in numbers

hidden in caverns. The females and young are reddish-brown, the adult males black.

10. "VESPERTILIO FIMBRIATUS, Peters, n. sp." (Fringed Bat.)

"Closely allied to *V. emarginatus*, Geoffr. Ears rather more emarginate and more pointed; tragus straight and shorter; wings extending to the middle of the metatarsus; margins of interfemoral and lumbar membranes ciliated.

"Third lower incisor horizontally half as long as the canine. Upper canine and third premolar closer together than in *V. emarginatus* or *V. daubentonii*, the second small premolar being situated at the inner side of the third.

"Above light brown, below ash-coloured, all the hair at the base slate-coloured.

	millims.
"Total length about .....	85
Head .....	18
Total length of ear .....	15
Anterior margin of ear .....	13
Tragus .....	7
Forearm .....	39
Tibia .....	16-17
Foot .....	11-12 "

A common species at Amoy. Several examples procured; some are plain brown on the upper parts, others rufescent brown.

11. "VESPERTILIO LANIGER, Peters, n. sp." (Woolly-faced Bat.)

"Ears, tragus, and face very similar to those of *V. mystacinus*; wings extending to the middle of metatarsus; point of tail exserted.

"Teeth similar to those of the same species, third lower incisor larger, and lower canines with much shorter points.

"Above dark brown, beneath greyish white. The greater basal part of the hair slate-coloured.

	millims.
"Total length about .....	80
Head .....	18
Ear .....	13
Tragus .....	6
Forearm .....	35
Tibia .....	16
Foot .....	10 "

This little woolly Bat is comparatively rare at Amoy; I only procured three specimens.

12. VESPERTILIO RUFO-NIGER. (Black-and-Orange Bat.)

*Vespertilio rufo-niger*, Tomes, P. Z. S. 1858, p. 85, pl. lx.

This Bat was described (*l. c.*) by Mr. Tomes from a specimen procured by Mr. Fortune at Shanghai. I have seen it at Tamsuy, N.W. Formosa (see P. Z. S. 1864, p. 381, *Pteropus*?). At Takow (S.W. Formosa) I procured a specimen, a note on the habits of which will



be found in P. Z. S. 1862, p. 356 (species allied to *Kerivoula formosa*).

At Takow, where Bats are very scarce, I was walking on the 5th July, 1865, under a grove of trees. One tree had large leaves and lilac-like flowers. Close to a bunch of flowers, between some big leaves, I observed a cluster of some roundish things which I took at first for fruit or some kind of gall-nuts. One of the clusters moved, and I saw that they were the heads of Bats. They were hanging head downwards from the stem of a leaf in a bunch one against the other, their heads only showing, their bodies being hidden by the leaves. There were about ten of both sexes,—one female with a young one at her breast, and her breasts much swollen. Their colour was light yellow, the wings being variegated with orange and brown. I procured several specimens, and sent them to England. Some of them came into Prof. Peters's possession; and he has identified the species as that described by Mr. Tomes. But surely the habits of this species would show that it is not a typical *Vespertilio*!

13. *VESPERTILIO CHINENSIS*, Tomes, P. Z. S. 1857, p. 53.

Brought from South China by Mr. Fortune.

"*VESPERTILIO DAVIDII*, Peters." (David's Bat.)

Dr. Peters had this species for examination from the Museum at Paris. It was sent home by Père David. It has not yet occurred in South China, and therefore I do not number it.

14. "*VESPERUGO ABRAMUS* (*et AKAKOMULI*), Temminck." (Chinese House-bat.)

The female is a rich brown, with lighter and dusky underparts; the male is black. I procured the former in Hainan, and the latter in Canton. They were common in the settlement at Canton of an evening in April.

15. "*VESPERUGO PIPISTRELLUS*, Daub.?" (Small House-bat.)

Dr. Peters marks my specimen from Formosa with a query. This is a very common species at Taiwan (capital of Formosa), and thousands may be found clustered together in the old Dutch fort within the walls of the city. I have no specimen from South China; but it doubtless must occur there also.

16. "*VESPERUGO IMBRICATUS*, Temminck." (Imbricated House-bat.)

A common species at Amoy.

17. "*VESPERUGO PULVERATUS*, Peters, n. sp." (Grizzled House-bat.)

"In form of ear and tragus similar to *V. maurus* of Europe, but the tragus apparently not double-toothed. Wings extending to the



base of the toes; point of tail exerted. Base of interfemoral membrane very sparingly furnished with hair.

"Form of teeth similar to those of *V. pipistrellus*, the first upper premolar being much larger than in *V. maurus*.

"Hair black, on the upperside with very short, beneath with longer brownish-grey tips.

	millims.
"Total length about.....	85
Head .....	18
Ear .....	12.5
Tragus .....	55
Forearm .....	34
Tibia .....	13
Foot .....	8"

I have specimens from Amoy taken in August and September. It is not a common species.

18. "*VESPERUGO MOLOSSUS*, Temminck." (Molossus Bat.)

Dr. Peters has this species from Hongkong.

"*VESPERUS SEROTINUS*, Schreber." (Evening Bat.)

A very common species in summer evenings about the city of Peking. I do not number it, as I do not know of its occurrence in South China.

19. *SCOTOPHILUS PUMILOIDES*, Tomes, P. Z. S. 1857, p. 52.

Brought from South China.

20. "*SCOTOPHILUS HEATHII*, Horsfield." (Heath's Bat.)

About five inches in length, with snuff-brown upper and snuff-yellow underparts; very common in Canton in April and May, flying about in large numbers over the Foreign Settlement.

21. "*SCOTOPHILUS TEMMINCKII*, Horsfield." (Temminck's Bat.)

Smaller than the last, brown above, much paler below; occurred in numbers in company with the last, in the same place.

22. *DYSOPES (MOLOSSUS) RUEPPELII*. (Large-eared Tailed Bat?)

*Dysopes (Molossus) rüppelii*, Temm. Monogr. de Mammalogie, i. pl. xviii.

I procured a specimen of a Bat some years ago at Amoy which greatly resembled Temminck's figure, though it could hardly be the same as that species, which is from Egypt. My specimen was sent to England, and, I believe, is now in the collection of Mr. R. Tomes. Some notes will be found on its peculiarities in P. Z. S. 1862, p. 11. The animal I speak of was brought to me alive on the 25th Nov. 1859. It was an adult male, and measured from snout to root of tail 4.3 inches; tail 1.2; expanse 15.5; ears 1.1, protruding beyond snout; breadth across the ears 2. Its skin was

soft and mole-like, of a deep brown, with a madder-tint, lighter on the underparts. The membrane extending from the tail to the legs was wrinkled, and covered the tail like a glove, so as to slip up or down as the creature wished to expand or contract its interfemoral wing, or, in nautical language, to shake out or take in reefs. The toes on each hind foot were five in number, of nearly equal length, the outer one thicker, all with longish pale hairs, chiefly at their tips; sides of the upper lip and upper surface of ear furrowed or grooved. Eyes small, and nearly hidden in the recess formed by the protruding ears. The living animal carried two species of parasites, one winged and the other wingless. These have been described and figured by Mr. H. Giglioli, in the 'Proceedings of the Microscopical Society' for 1863, as *Strebla molossa* and *Polyctenes molossus*.

I have often, on a cloudless evening, at Amoy, seen these Bats flying along high in the air, being easily distinguished by the narrowness of their wings. When irritated, the creature has a habit of exposing its tail by the process above described, and of sinking its eye into the socket, and thrusting it out again.

#### INSECTIVORA.

##### 23. TALPA INSULARIS. (Formosan Blind Mole.)

*Talpa insularis*, Swinhoe, P. Z. S. 1862, p. 10.

Found in the hills of the north end of Formosa. A Mole occurs about Peking which M. Alphonse M.-Edwards has distinguished as the *Scaptochirus davidianus* (Annales des Sciences Nat. 5<sup>e</sup> série, t. 7), *anted*, p. 450.

##### 24. TALPA, sp.

I have a Mole from Foochow, China, which resembles the Szechuen species; but, owing to the present troubled state of Paris, I have not been able to compare it.

##### 25. SOREX MURINUS, Linn. (Musk-rat.)

*Sorex myosurus*, Pall.

*S. swinhoei*, Blyth, J. A. S. xxviii. 285.

*S. albinus*, Blyth, J. A. S. xxix. 90 (the young).

The Common "Musk-rat" is found throughout China, Formosa, and Hainan, in houses in large towns. Has an unpleasant musky odour, and a peculiar chatter, like the chinking of money (Swinh. 'Zoologist,' 1858, p. 6224; P. Z. S. 1864, p. 382; P. Z. S. 1870, p. 231).

##### 26. SOREX —? (Small Shrew.)

*Sorex* —?, Swinhoe, P. Z. S. 1864, p. 382.

The two little Shrews I took under decayed dung on a hill at Tamsuy, Formosa, and mentioned before (*l.c.*), I sent in spirits to Paris, but do not at all know what has since become of them.

## 27. ERINACEUS — ? (Hedgehog.)

I have heard of Hedgehogs occurring at Taiwan (Formosa), at Amoy (P. Z. S. 1864, p. 378), and in Hainan (*ante*, p. 237), but I have never been so fortunate as to procure a specimen from any of these localities. They are common about Peking; and I have lately brought to the notice of this Society the Peking species, and proposed to name it *E. dealbatus* (*ante*, p. 450).

## CARNIVORA.

## 28. URSUS TIBETANUS, F. Cuvier. (Black Bear.)

*Helarctos tibetanus*, Swinhoe, P. Z. S. 1862, p. 351.

*Ursus formosanus*, Swinh. P. Z. S. 1864, p. 380.

The Tibetan Black Bear is found in the mountains of the Shantung promontory; and I procured thence a living specimen, which is now in the Gardens of the Society. But the Black Bear of Formosa I long suspected to be distinct; and a young animal I procured at Taiwan seemed to confirm my view. It had the face as black as the rest of the body, instead of brown as in the individual from Chefoo. The animal from Taiwan also reached England alive, and may be now seen alongside of the other black Bears. Mr. Bartlett tells me he can see no distinction between it and the true Tibetan form. At Taiwan I obtained two flat skins of the Formosan Bear in the adult state; and these would show that the animal attains a very large size, fully equal to the biggest specimens from the Himalayas; but my skins exhibit, in addition to the crescentic white patch on the breast, a large round white spot on the belly. This Mr. Bartlett tells me he has also seen in the Bears from India. I procured a good series of the skull of our Bear from the aboriginal tribes of the central mountains, who dedicate them to the Great Spirit of the Chase; and in these I cannot find any noticeable difference from the skulls of the Himalayan species in the British Museum. We must allow, then, that the Formosan Black Bear is simply the Tibetan Bear, which appears also to occur in Hainan, and probably throughout the mountains of China generally. I extract a note on the Formosan Bear from the 'Taiwanfoo Gazetteer':— "Bears have hair stiff as bristles, and their coat is thick and shaggy; the arrow's head cannot pierce the body. Their feet are strong, and with their claws they can climb trees, on the summits of which they will sit cross-legged, or they will burrow into the earth and dwell there. People capture them by stratagem. Before they have carried young their bellies contain much suet that is eatable; their paws, however, are the tit-bits (lit. the one of eight pearls). Hashed and roasted, these afford a true relish; but it is no very easy matter to cook them properly."

Brown Bears, or "Men Bears," as the Chinese call them, are said by the natives to occur in the mountains of South China; but I have never seen any. In North China, I have been informed by friends, Brown Bears are taken about by showmen, and made to dance and



do various tricks at fairs. These will probably be of the species acquired by the Society in 1867, and figured in woodcut as *Ursus piscator*, Pucheran (P. Z. S. 1867, p. 817).

29. MELES LEPTORHYNCHUS, Alph. M.-Edwards. (Chinese Badger.)

*M. chinensis*, Gray, P. Z. S. 1868, p. 207 (figures of skull).

Of this species "the skull," remarks Dr. J. E. Gray, "is so like that of *Meles leucurus* from Thibet that I should have regarded them as the same, if there were not so much difference in the length, and flaccidness and coloration of the fur, and the abundance of the under-fur. This may depend on the climate. The shortness and peculiar colour of the fur are exactly alike in the specimens sent by Dr. Harland from Hongkong, and by Mr. Consul Swinhoe from Amoy. I may observe that when Dr. Harland's specimen was sent it was regarded as a young *Arctonyx collaris*." (Cat. Mamm. 1869, p. 127.)

The first of this species was brought to me at Amoy on the 17th July, 1867, in so badly wounded a state that it soon died. It was a male, and measured from the snout to the root of the tail 22 inches: tail 6; from carpal joint of fore leg to tips of claws 4·75; from shoulder to carpal joint 8·25; sole of fore foot 2·2 long, 1·1 broad, longest claw ·6; hind foot 2·8. Length of head 5·1; tip of nose to corner of eye 1·7; from ear to ear across head 2·45; breadth of ear 1·5; edge of upper lip to base of projecting nose ·75.

Hair of upper body coarse, about 1·5 inch long. Nose and nails brownish flesh-colour. Soles of feet pale flesh-colour. Band under nose brown, with a narrow side border of same to lower lip. A band of black about an inch wide runs along either side of the head, from near the snout across the eyes, and terminates broader just behind the ear. A broad stripe of buff-white runs from the nose to the occiput, and another of the same colour on either side of the face (including angle of mouth, with a narrow strip round chin) to below and beyond the ear; ear black, with a buff-white border to its upper half. Underparts and limbs black; upper parts somewhat densely clothed with short pale buff woolly under-fur; the upper-fur long and coarse, and also pale buff with dark centres, giving a grizzly appearance to the coat. Tail plain light buff. Teeth somewhat worn. The fur had many lice, but I only detected one flea.

On the 19th July a male and female were brought to me, the latter very large and very old, with few teeth remaining, and these quite worn down. They were both fresh killed. The female had four teats on the belly, and two on the abdomen, just between the fore part of the thighs. She measured 31·5 inches, with a tail of 7·25 to its bony tip, and hairs extending 2·25 beyond; between ears across head 2·75. Her hair was much longer, especially on the tail; and she was much more tawny on the upper parts. Neither of them had the black and white face-markings so distinct as in the younger animal of the 18th June.

Later on in the summer I procured several more, and noticed that in some the white central face-streak gets almost obliterated by being smeared with black.

In the hills of the Tinggan District, near Amoy, these animals appear to be common. They lie torpid in their holes during winter, but in summer come down to the fields of sweet potatoes, which they root up and eat. The natives call them "Sweet-potatoe Pigs," and lie in wait to shoot them with matchlocks. The flesh is not esteemed by the Chinese, and only the poorest classes eat it.

Our South-China animal, as M. Alphonse M.-Edwards has lately shown me, is of the same species as that sent to Paris by Père A. David from the neighbourhood of Pekin. This Badger, therefore, must have an extensive range. A second species also occurs near Pekin, the *Meles leucolæmus* of A. M.-Edwards. *M. ankuma*, Temm. & Schleg., is from Nagasaki (South Japan). In Formosa I noted no Badger.

### 30. *HELICTIS MOSCHATA*. (Musky Tree-civet.)

*Helictis moschata*, Gray, P. Z. S. ii. p. 94 ; 1865, p. 153 ; Cat. Mamm. 1869, p. 142.

Mr. Reeves originally brought this animal from Canton. I have got it from the neighbourhood of Amoy, and lately found it offered in the market at Shanghai. The Shangai specimens are more tinged with orange-yellow on the underparts, and in colouring come near the Formosan species.

### 31. *HELICTIS SUBAURANTIACA*. (Orange-tinted Tree-civet.)

*Helictis subaurantiaca*, Swinhoe, P. Z. S. 1862, p. 355, pl. lxiv. ; Gray, P. Z. S. 1865, p. 153 ; Cat. Mammals, 1869, p. 142.

This species is found throughout the wooded hills of Formosa, but in the north end of the island it attains its richest colouring. In the south, near Takow, a specimen was brought to me quite pale, and scarcely differing in outward appearance from the former species.

Dr. J. E. Gray has pointed out (*l. c.*) the chief characteristics that distinguish this from its Chinese and Nepaulese allies.

### 32. *MARTES FLAVIGULA* (Bodd.), var. *XANTHOSPILA*. (Yellow-necked Marten.)

This fine Marten was procured by my hunter in the forests of the central mountains of Formosa. It differs from Himalayan specimens in the British Museum in having the dark colour of the head less extended on the hind neck, and grizzled with white on the occiput, and in having the sides of the neck bright golden yellow. The skull is unfortunately within the skin, and so is not handy for comparison. Head purplish brown, grizzled with white on the occiput. Behind ear and backwards a long broad spot of purplish black. Chin, upper lips, and in a line backwards to lower edge of ear, throat, central streak of chest, and a stripe between the hind legs white. Sides of neck rich golden yellow. Fore part of back and fore

quarters light brown washed with golden. Body above and below light purplish brown, becoming nearly black on hind quarters, hind legs, and tail. The fore legs are deep purplish brown, paler on the front; claws whitish. The brown of the head ends abruptly backwards, with a transverse golden line edging it. Length from snout to root of tail 20 inches; tail 14·5, with 2 inches of hair beyond. Length of head 4·25; greatest breadth 2; breadth between ears 1·75. Hind foot from tarsal joint 3·50; sole-pads small; claws short, deep, and well-curved.

I only procured the single specimen in Formosa, and have never heard of its occurrence in South China; but as the Indian animal is, according to Dr. Jerdon, very widely spread in Hindostan and its archipelago (Mamm. of Ind. p. 82), this Marten is likely enough to be found in suitable localities in China also.

### 33. *MUSTELA SIBIRICA* (Pall.). (Red House-stoat.)

*Vison sibirica*, Gray, P. Z. S. 1865, p. 117; Swinhoe, Zoologist, 1858, p. 6223.

Lives in the walls of houses in most of the towns in China, and feeds on Rats and Snakes. I have seen them in Tientsin, Amoy, and Formosa, and have heard of them in most places that I have visited in China (see *antea*, p. 238).

The following note was made on a fresh male specimen at Amoy, about two-thirds grown:—

Length of head 3·2 inches, from its junction with neck to root of tail 10·5; tail 9·75 (including 1·2 of hair at tip). Height of ear 1·25; depth of head near ears 1·75; breadth between ears ·75, between eyes ·7; greatest breadth of head 1·75, of nose ·4, of eye ·4; from rictus to tip of nose 1·2, to end of lower lip ·75.

Hair of a uniform light chestnut throughout, with paler underfur, slightly tinged with grey. Chin and round nose white, with some white on the under neck. Face in front of eyes blackish brown, with a little brown on the crown. Moustache-hairs brown. Claws light brown colour.

### 34. *LUTRA CHINENSIS*. (Chinese Otter.)

*Lutra chinensis*, Gray, Loudon's Mag. Nat. Hist. 1836, p. 580; P. Z. S. 1865, p. 126; Swinhoe, Zoologist, 1858, p. 6224; P. Z. S. 1861, p. 390; 1864, p. 381.

Found all over South China; frequents the sea-coasts as well as inland waters. On the 27th January, 1867, some fishermen brought me a fine male that had crept into their boat to steal the fish. It was dead, but still warm. I took down the following notes of its appearance:—

From snout to root of tail 25 inches; tail 16·5, in girth at base 6 inches, tapering to a point, with about ·4 length of hair beyond tip, making a complete point. Ears small and rounded; breadth between them across head 3·25; length of head 5·25; breadth between outer angles of eyes 1·3, between inner angles 2; eye in dia-



meter .5 ; breadth of muzzle 2.2. Length of fore leg from shoulder to tip of claws 7.75 ; of hind leg from hip to tip of claws 9.5. Girth of neck 10.25, of body 13.

Throat, under neck, and round upper jaw white, with light buff under-fur. Sides of head and neck between fore legs and on their underside whitish with brownish under-fur. Breast and belly brownish white, with deep buff-brown under-fur. Upper parts, tail, between hind legs, and anal region deep glossy brown. Fore feet with light yellowish buff on the three central toes ; nails flesh-colour. Nose black ; irides dark ; lips flesh-red, washed with black ; teeth white. Feet beneath brownish flesh-colour, with blackish-brown pads.

In the Ichang Gorge, 1110 miles up the river Yangtze, we came across a fisherman with a trained Otter. It was very tame and gentle, but he kept it chained in his boat. To make use of its services he would throw his large loose net, weighted at the edges, and let the Otter into the water fastened by a long string : the Otter would swim and dive round the outer edge of the net, driving the fish under the net, which gradually contracted its edges until it was drawn up. The fisherman would then call the Otter, giving him a jerk or two, and it quietly returned to its corner in the boat. The Otter appears also to be used in India for a similar purpose (Jerdon, *Mamm. of India*, p. 87).

### 35. *LUTRA SWINHOEI*. (Swinhoe's Otter.)

*Lutra swinhoei*, Gray, P. Z. S. 1867, p. 182.

Dr. J. E. Gray has founded this species on the skull taken out of the skin of a young Otter from Amoy (not Formosa as stated), which I sent home, in company with a larger one from the same place. Dr. Gray observes (*l. c*) that the skull in question "has a very large square tubercular grinder, and a very large rounded internal lobe to the flesh-tooth, as in the second section," which he has called *Lutrogale*. He adds that the species "is easily characterized by the small size of the upper cutting-teeth, the series forming only a width of  $4\frac{1}{2}$  lines ; while the series of most other Indian Otters occupy 6 lines (or half an inch), or sometimes rather more." The specimen that was sent to Dr. Gray I had alive at Amoy on the 27th August, 1859. It had been captured at Gawakang, an island close to Amoy. I judged it to be about four months old. It was very gentle, and followed me about like a dog ; it delighted in rolling about the floor scratching and biting itself, or would sleep rolled up on the doormat. When left alone it would utter loud cries like that of a young chicken in distress, and when hungry a long series of sharp jarring notes. It measured 21 inches, less tail 8 ; length of head 4, breadth of head 2.5, across lips 1.7, height of head 2 ; breadth of eye .4, of nose .6. Fore leg 3.5, across expanded foot 1.3 ; hind leg 3, across hind foot 2. Upper parts rich dark brown ; under parts yellowish brown, nearly white on the tips, cheeks, throat, and fore neck. Ears small, and nearly concealed. Feet well palmated, with bare pinkish-brown soles and short white nails. Lower bristles over the lips white, the upper brown.

A species of *Aonyx*, or clawless Otter, is found in Hainan (see *anted*, p. 229); but none of this group has turned up either in South China or Formosa. *Lutroneptes whiteleyi*, Gray, P. Z. S. 1867, p. 181, is a long-tailed species from Hakodadi, North Japan.

36. FELIS TIGRIS. (Bengal Tiger.)

*Felis tigris*, Linn.

*Tigris regalis*, Gray, P. Z. S. 1867, p. 263.

Tiger-skins are always purchasable at the fur-shops in Canton; and, from their moderate cost, there is no reason to disbelieve the statements of the dealers, who affirm that they are procured on the hills to the westward of that city. In 1858 several made their appearance on the bare hills of the country near Amoy, and committed much depredation on the live stock of the farms, and in some instances killed and injured the natives. One of these animals swam across to Amoy on the 2nd of February, and appeared in the early morning squatting, cold and exhausted, outside a temple in the lower part of the town, or suburb of Ey-mun-kang. It was hunted into a house and locked in. The roof was then partly uncovered, and some soldiers were called to dispatch it with matchlocks. This they did by firing down through the roof. The dead beast was suspended to a bamboo pole, and carried by four men in triumph through the town. I had it brought into my courtyard and examined it. It was a male, and measured from the snout to the root of tail 64 inches, tail 30; fore leg from shoulder 33; circumference of foot 13, footpad 4; length of head 14, depth of head 9, circumference of head 29; space between ears 9; length of ear 5.5; length of upper canine tooth 2; circumference of body round thorax 40; hind leg 33; circumference of foot 12. Circumference of hind body (round abdomen) 35; round humerus 18, round femur 19, circumference of tail 9.25. It weighed 330 lbs. The skin of this animal was presented to the temple in front of which the poor beast in life was first sighted, and was afterwards used as a carpet for the chief idol on the shrine. The bones were purchased for medicinal purposes by the Taotai, or Governor of Amoy; and its flesh was sold in the streets at 4s. a pound as a preservative against smallpox. Its stomach was empty.

On the 11th November of the same year I chanced to meet a Tiger myself. I was on the shore of the mainland opposite Amoy in the afternoon looking out for small birds, in company with a friend. I carried a gun, but had only small shot and one cartridge. Some villagers came running to us crying "Go and shoot the Tiger." I thought they were making game of us, until some of them assured us that there really was a Tiger in a neighbouring village, and that they would be much obliged if we would kill it. They led us to a village at the foot of a hill near the shore, where we found men, women, and children huddled outside in great alarm, many of the men armed with matchlocks. They desired us to take off our boots, and one of the men guided us over the roofs of the houses to the last house near the hill, and, pointing to a large rock, he bade us listen. We



could distinctly hear growls, and peering over I saw the lips and feet of a tiger under the overhanging rock. The house on which we stood presented a wall facing the rock, and about two yards distant. We went inside, and I persuaded the owner to make a hole in the wall. I had no means of drawing the charge of my gun, so rammed down a cartridge on the top of the small shot in one barrel, and a few hollow buttons into the other. In the hurry and excitement, no bullets or iron nails were forthcoming. The Tiger noticed the hole in the wall, but only growled. I fired the button-barrel first, aimed at its neck, but he only answered by a growl, and I saw that the buttons had done no more than turn up the skin, without penetrating. His face was full towards me, and I gave him the cartridge right between the eyes. He gave a furious roar, and bounded into the garden, where he stood for a few seconds bleeding from the nose, and with his tongue lolling from his mouth. I had no more cartridges with me, so I loaded again with the hollow caged buttons which the villagers tore off their coats for me. The Tiger had moved away, and I tracked him by his blood into a dilapidated temple. I looked in at the window, and there stretched beside a coffin sat the noble beast. He turned his head and growled as he saw me; and, without a moment's thought, I raised the barrels and fired another shower of buttons at his face. I turned and fled; but a roar followed which I never shall forget, and I found myself, breathless, at the bottom of a precipice, with my gun upraised, expecting to see the angry creature upon me; but, strange enough, he did not follow. The villagers, who were assembled two hundred yards away, all ran when I ran; but seeing the Tiger did not pursue, one of them came forward and put me on his knees, and patting me on the back, helped to bring back my breath, which I had lost by the fall. We crept up to the window again. Every one of the thick wooden bars had been knocked out by the force of the leap; but from the blood only splashing the outside of the window, it was evident the Tiger had not come out of the building. We looked in at the window, and just below, outstretched on the floor in a pool of blood, lay the Tiger. I threw up my hat, and shouted to my friend, who watched the proceedings at a distance, that the Tiger was dead. At the noise the Tiger raised his head and growled. He was a Cat, of course, and had the usual nine lives. I went to the villagers, and proposed a joint attack, but they would not consent. Some of them ascended the hill behind, and fired on to the roof of the house in which the Tiger was sheltered. It was getting dark, so, breathless and hurt, I took boat and returned to Amoy. A few hours after the Tiger is said to have moved away; but whether he died or survived his wounds, I could never satisfactorily learn, so contradictory were the stories told.

In 1859 and 1860 Tiger-cubs were offered in the market at Amoy for sale, and one of them was kept alive by a friend for many months. It eventually died, and I exhibited its skin before this Society on the 23rd of June, 1863\*, comparing it with a skin of a Tiger from India of about the same age. It differed a little in the markings of

\* See P. Z. S. 1863, p. 237.



its rump and tail, but not more than might be attributable to individual variation.

At Foochow and Ningpo Tigers have also shown themselves in the surrounding country, and the animal is well known to the natives throughout China as the Lao-hoo.

The Tiger in the north of China grows to a very large size, seven to eight feet from snout to tail, and is clothed with much longer and denser hair. Skins of this northern race are brought to the port of Newchwang from Manchuria. I exhibited one of them at the meeting of this Society on the 13th of January, 1870, and pointed out its peculiarities (see *antea*, p. 3). This skin is now in the British Museum; but it will be necessary to procure a skull to determine whether there really is sufficient difference to justify separating the Tiger of the snows from the Tiger of the tropics.

### 37. *FELIS PARDUS* (Linn.) (Leopard.)

*Leopardus pardus*, Gray, P. Z. S. 1867, p. 263.

Found in various parts of South China. Judging from skins procured at Canton, the Chinese race is of a much richer yellow colour, and has the spots larger and blacker than is usually seen in skins from India.

*Leopardus japonensis*, Gray, P. Z. S. 1862, p. 262 (*L. chinensis*, Gray, P. Z. S. 1867, p. 264), is the representative form in North China and Manchuria (see *antea*, p. 4).

### 38. *FELIS MACROCELIS* (Temminck). (Clouded Tiger.)

*Neofelis macrocelis*, Gray, P. Z. S. 1867, p. 265.

*Leopardus brachyurus*, Swinhoe, P. Z. S. 1862, p. 352.

The acquisition of a skull and a properly stuffed animal during my last sojourn in Formosa satisfactorily proves that the insular form of "Clouded Tiger" is merely a small race of that of the Continent. My specimen was a male, and measured from the snout to the root of the tail 28 inches, tail 23. Its head is small, and its feet large. It is of a rich buff ochre colour, with deep-black spots and markings. Underparts nearly white, with large brownish-black markings.

A large flat skin of a female, brought at the same time, was of a paler and yellower tinge; and that of a younger animal was brighter still, with a green wash over the yellow, the fur being longer and shaggier than in the two adults.

### 39. *FELIS VIVERRINA*, Bennett. (Asiatic Wild Cat.)

*Viverriceps bennettii*, Gray, P. Z. S. 1867, p. 268, fig. 5 (skull); Swinhoe, P. Z. S. 1862, p. 7.

The flat skin I brought home from Formosa in 1862 was identified with this species. I have not since succeeded in getting an entire animal; so it is not certain whether ours is the same as the Himalayan species. Flat skins like the Formosan are also procurable in shops in South China.

## 40. FELIS CHINENSIS. (Chinese Tiger-cat.)

*Felis chinensis*, Gray, Mag. Nat. Hist. vol. i. p. 577 (1837); P. Z. S. 1867, pp. 274, 400.

*Leopardus reevesii*, Gray, List of Mamm. Brit. Mus. 1843, p. 44.

*Felis javensis*, Scl. Cat. of Vert. p. 22 (1866).

This little Tiger-cat is the commonest wild cat in Formosa and South China. I procured a good skin and skull of an adult and of a young one in Formosa, and sent thence to the Society a living example in 1866, which, however, unfortunately died in the Gardens soon after landing. I have also flat skins of it from the Fokien hills and from Shanghai. The British Museum has specimens brought from Canton by Mr. J. R. Reeves many years ago. It is a forest species, and is extremely wild and irritable in confinement.

The skull of the Formosan adult female is of a long oval form, measuring in length 3·4 inches, breadth across malar arches 2·25, breadth behind orbital spine 1·1; greatest breadth of brain-case, below, 1·4; orbits imperfect.

Head brownish grey, with more or less rust-colour; a line over and under the eye, a patch on each side of nose, cheeks, and chin pure white. From the white line over the eye runs a black line on each side over the crown and down the back of the neck; between these are two other longitudinal black lines, with an indistinct short one between them; the muzzle is spotted with black, surrounded by rusty chestnut, and an irregular line of the same runs from the posterior angle of the eye to under the ears, breaking into spots; another runs along the cheek, a third shorter one further down, and a fourth like a long spot on each side of the throat. Moustache-bristles brown and white. Ear pale in front, black behind, with a white spot. A black streak of grey marks each side of the hind neck. Underparts, inner surface of fore legs and of thighs, white, with large brownish-black oval spots. Upper parts brownish grey, washed between the shoulders, and less richly along the back, with chestnut-brown; shoulders spotted and marked with rich deep chestnut-brown, with streaks between them of the same colour mixed with black; further along the back the streaks break up into long oval or oblong black spots. The spots on the sides of the body and on the legs are browner. Fur short and somewhat soft; under-fur dusky grey. Fore feet light yellowish brown, speckled on the outer surface with chestnut; under foot dusky. Hind feet the same, without spots. Tail with longer and woollier hair than the body, more dully coloured, with large spots of dingy brown.

Head long and narrow, about 4·25 inches; ears short and angular, 1·6 long. Length of body 17, of tail 10·5. Fore leg about 9; hind leg about 9·7. Fore foot, from carpal joint, 2·8; greatest breadth 1·2. Hind foot, from tarsal joint, 4; greatest breadth 1·4.

The Formosan kitten, apparently about six weeks old, is similarly marked on the face, but has the spaces above the nose and under the eyes much richer chestnut. Its hair is longer and softer, of a dingy chestnut-brown, with the spots and marks fainter. Tail

thinner and less woolly than in the adult. Underparts white, with the spots also faint; legs more washed with chestnut.

41. *VIVERRA ZIBETHA*, Linn. (Indian Civet.)

*Viverra zibetha*, Gray, P. Z. S. 1864, p. 512.

*V. ashtoni*, Swinhoe, P. Z. S. 1864, p. 379.

Common in the bamboo-covered hills of South China, from Canton to near Shanghai, and in the Chusan Islands; occurs also in Hainan (see *anted*, p. 227). I have never detected it in Formosa.

42. *VIVERRICULA MALACCENSIS*, Gmelin. (Little Spotted Civet.)

*Viverricula malaccensis*, Gray, l.c. p. 513.

*Viverra pallida*, Gray; Swinhoe, P. Z. S. 1862, p. 7.

Common in South China, Hainan, and Formosa.

43. *PAGUMA LARVATA*. (Gem-faced Civet.)

*Paguma larvata*, Gray, P. Z. S. 1864, p. 359; Swinhoe, Zoologist, 1858, p. 6223; P. Z. S. 1864, p. 381.

*P. larvata*, var. *taivana*, P. Z. S. 1862, p. 8.

This tree-loving species is found in the hills of the Kwangtung and Fokien Provinces and in Formosa.

I kept one alive for some months in 1856, chained in my verandah at Amoy. It fed on cooked meat in preference to raw, and did not seem to care much for either fowl's eggs or small birds. A stuffed snake threw it at once on its guard, and with a spring it seized it by the head and shook it. A shrimp was offered to it; this it smelt, and then rubbed its head over, first one side and then the other, as dogs do over carrion; it refused to eat it. When let loose it used to climb up the doors and legs of tables and chairs, putting one foot on each side, and pushing up with the hind legs. It walked backwards and forwards at the length of its chain, shaking the lower jaw, and would suddenly stand up on its hind legs, giving utterance to a shaking cry. It snapped at all dogs, and kept them at a distance. It slept during a great part of the day, but continued lively for the greater part of the night. The heat affected it a good deal, and made it pant.

The Society's Gardens have two live specimens of this species received from Formosa.

44. *URVA CANCRIVORA*, Hodgs. (Crab-eating Mountain-mungoos.)

*Urva cancrivora*, Gray, P. Z. S. 1864, p. 568.

A specimen brought from the Fokien hills, near Amoy, agrees with Hodgson's specimens in the British Museum, from Nepaul.

Face long and pointed, with the nasal portion recurved; nose and upper lip with a deep vertical groove. Ears short, broad, and rounded. Soles of feet and underside of toes quite bare; claws strong. Fore foot:—first toe very short, second longer than the



fifth, the third and fourth subequal; a basal membrane attaches the second and third, and a membrane reaching to end of first joint the third and fourth. Hind foot: first toe diminutive, and placed well behind; third toe longer than the fourth, and united to it by a membrane to the first joint; second attached to the third, and fourth to the fifth, by short membranes. Head and feet clothed with short hair; rest of the body with long coarse and thick woolly under-fur; tail long and bushy, with long very coarse hair.

Nose and edge of lips brownish flesh-colour; iris deep brown. Hair of muzzle brown; upper lips, chin, throat, and a ridge of longish hairs extending from under the ears to the shoulder white. Head with light reddish-brown under-fur, the short hairs of the upper-fur being individually banded with black and white. Ear with short close-set whitey-brown hair, partly hidden by the hair of the cheeks. Upper parts of body with the under-fur brown at roots, buff above, the long hairs of the upper-fur having each a broad central black band and white tip, giving a hoary appearance to the coat; underparts with less black. Fore and hind legs blackish brown, sprinkled about humeral and femoral parts with buff specks. Tail buff white, with a few black-banded hairs intermingled.

Length from snout to root of tail 20 inches; tail 12, with an extra inch of hair at tip. Head 4·75; between ears 2. Palm to nail-tips 2·50; breadth of palm ·75. Sole to nail-tips 2·50; breadth of sole ·80.

This species has an extensive range in India, being found from Afghanistan through the Himalayas to Aracan; and we find it also occurring in South China.

No typical *Herpestes* seems to occur in China north of Hainan.

45. *NYCTEREUTES PROCYONOIDES*. (The Raccoon-like Wild Dog.)

*Nyctereutes procyonoides*, Gray, P. Z. S. 1868, p. 522.

*Canis (Nyctereutes) viverrinus*, Temm. Faun. Jap.; v. Schrenck, Amoorland, i. p. 63.

The "Raccoon or Civet Dog" ranges from Canton into Amoorland, and is also found in Japan. I have specimens of it from the Fokien hills, from Hankow, and from Shanghai; but I have not met with it in Formosa.

46. *VULPES HOOLE*, sp. nov. (South-China Fox.)

*Vulpes vulgaris*, Swinhoe, Zoologist, 1858, p. 6223.

The Fox of the plains and lower hills of South China is in form and size very similar to that of Europe; but it is paler, wants the black spot on the sides of the snout, and has the colours of its coat differently arranged. I have placed in the British Museum an adult female and two cubs; but as their skulls are within the skins, I have not been able to remark on them.

Throat, along upper lip, and under neck white, washed with black on chin, with dusky-grey under-fur. Moustache-bristles black.

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Ear ochreous in front, black behind, with yellowish chestnut at base. Round eye and on space in front bright rufous. Rest of head light rufous, grizzled with white on the cheeks and crown. Upper parts dingy ochreous, with more or less rufous on the hind neck and shoulders, and brightening into chestnut on the back; deep rust-colour near the tail, grizzled with white, the white increasing on the sides of the buttocks; under-fur of the back dusky grey at base, rust-colour above. Tail rusty chestnut on the upper surface, with some of the hairs tipped with black; its sides and under surface light dingy buff, with the apical half of each hair black; its end with a conspicuous white tip. Anterior surface of fore legs blackish grizzled with white, outer sides rusty grizzled with yellowish, inner sides buff, under surface and hair between toes dingy brown. The white on the chest continuous downward in a line to the middle of the belly. Belly from behind fore legs, on each side of the white line, chestnut buff. Abdomen whitish buff, with a faint tinge of purple. Anterior surface of hind legs as of fore legs; their sides and under tarsi bright rusty chestnut.

Head 7 inches; neck to root of tail 19; tail 13·5, with 3 inches of hair projecting beyond. Length of ear 3. Length of fore foot, from carpal joint to tip of nails 3·76; of hind foot 5·5.

The cub about six weeks old is covered with thick downy hair, with a few long soft hairs intersprinkled. The rufous patch between the eye and nose is well marked. Upper lip and throat white, blackish on chin. Chest dingy white. Ear yellowish in front, black behind. Paws and toes blackish on upper surface. Crown and upper back dingy rust-colour; shoulders and sides of the body whitish. Tail light dingy, with a rufous wash on the upper surface. Underparts light dingy rust-colour, with a purplish wash.

This Fox is common on the bare granitic hills of Amoy; and I have seen as many as six together at a time. When pursued they spring with great agility from rock to rock, and soon outrun a Greyhound on such rough ground; but on the plains they are no match for the dog. They descend to the plains at night, and rob the hen-roosts. I have also seen them in Hongkong island. About Tientsin, in North China, Foxes are also common; but I have never handled a specimen from any northern locality. No Fox has been found in Formosa.

47. *VULPES LINEIVENTER*, sp. nov. (South-China Mountain-fox.)

Two Foxes were brought to me at Amoy in 1867, from the higher mountains of Fokien. They are very like the Black-bellied Fox of Europe, *V. vulgaris*, var. *melanogaster*, Bp.; but are remarkable for having a fine line of chestnut on each side of the belly. They are very brightly coloured, and so differ conspicuously from the last-described pale species, though in form and size very similar. Unfortunately the skulls were not saved.

Head grizzled with white and chestnut, round and under eye rich chestnut. A broad angular mark of brown from anterior corner of

eye to lip. Moustache- and face-bristles black. Snout, under level of nose, part of cheeks, and throat white. Throat, under neck, chest, and central underparts black, grizzled with white. Inside of ear well clothed and of a lively buff colour, which extends to the edges; back of ear brownish black. Upper parts buff, many of the hairs of the hind neck and shoulders being broadly tipped with black. Crown and hind neck washed with chestnut, which brightens as it runs down the back in a broad line. Under-fur greyish brown. Fore legs clothed with reddish-brown under-fur, and covered with black and white hair, with a broad deep black line running down their anterior surface to the feet; under carpus and feet fine brownish chestnut, brown on the hair about the palms. A bright chestnut-buff line runs down each side of the belly, from the fore leg to the hind leg, and narrows as it advances down inner side of hind leg, where it is flanked inwardly with a white line. Thighs grizzled with black, white, and chestnut. Tail bushy, bright chestnut on the upper surface; with many of the hairs broadly tipped with black; under surface much paler, with more black; tip white.

Snout to root of tail 32 inches; tail 17, with 2.75 length of hair beyond tip. Fore leg 11 inches, hind leg 12.5. Ear 2.75 long, 1.75 broad at base.

#### 48. ?OTARIA STELLERI. (Steller's Sea-bear.)

*Otaria stelleri*, Temm. & Schleg. Faun. Japon.

I have been informed by the European pilots at Shanghai that they have often seen Seals basking on some islands called "the Ruggeds," at the mouth of the Yangtze. I have not been so fortunate as to get a specimen; but it is not unlikely that they will turn out to be the same as the animal recorded from South Japan.

### RODENTIA.

#### 49. SCIURUS CASTANEOVENTRIS. (Chestnut-bellied Squirrel.)

*Sciurus castaneoventris*, Gray, Ann. N. H. ser. 3. xx. p. 283; Swinhoe, P. Z. S. *ante*, p. 231.

*Sciurus erythræus*, Swinhoe, P. Z. S. 1862, p. 11.

The Chestnut-bellied Squirrel is found in Hainan, the provinces of Kwangtung and Fokien, and in Formosa. The finest Formosan skins are rather larger, with longer tails, are bright deep chestnut on the underparts, and have broad buff tips to the hair of the apical half of the tail. The chin and chest in these is for the most part not red, but of one colour with the back. As in the Hainan and Chinese skins, the redness of the underparts is very variable in extent and intensity; and so is the yellowness of the tail. I have specimens from South Formosa of one colour throughout, and others with more or less red; and with a series before me I find it impossible to divide the animals from the different localities even into races. A fine specimen from North Formosa measures from snout to root of tail about 9 inches; its tail 9.5, including 2.5 inches of



hair beyond tip of tail-bone. *Sciurus lokriah*, Hodgs., *Sc. lokrioides*, Hodgs., and *Sc. erythrogaster*, Blyth, appear to be only three varieties of this Squirrel, the last very close to the Formosan. *Sc. erythræus*, Pall., has a fringed ear, and is distinct.

The British Museum has a red-throated Squirrel, marked from China. It is black on the upper parts and tail, chestnut on the underparts, fore legs, and hind feet, white on the sides and thighs. It differs somewhat from an animal also there from Borneo, but is so much in character with it that it is difficult to believe that it is really from China. Dr. J. E. Gray has described it as *Sciurus rufogularis*, in the Ann. & Mag. Nat. Hist. 1842.

50. *SCIURUS GRISEIPECTUS*. (Grey-breasted Squirrel.)

*Sciurus griseipectus*, Gray, Ann. & Mag. Nat. Hist. ser. 3. xx. p. 282.

China is given as the habitat of this plain-coloured species; but I have not had the good fortune to come across it in that country.

51. *SCIURUS CHINENSIS*. (Chinese Squirrel.)

*Sciurus chinensis*, Gray, Ann. N. H. ser. 3. xx. p. 282 (1867).

The Museum has two of this species from Shanghai, brought home by Mr. John Reeves. They are brown on the breast, upper parts, and tail; dusky white below, from chin to tail. Length of body about 7 inches, tail bushy and rather longer than the body.

On my journey from Ningpo to Shanghai, overland, I saw many of this species in groves of trees. It is arboreal in habits.

52. *SCIURUS M'CLELLANDI*. (M'Clelland's Squirrel.)

*Sciurus m'clellandi*, Horsfield, P. Z. S. 1839; Swinhoe, P. Z. S. 1862, p. 11.

This small striped Himalayan Squirrel, with tufted ears, is found in Hainan, the provinces of Kwangtung and Fokien, and in Formosa. M. A. Milne-Edwards assures me that he has also received it from Western Szechuen.

53. *SCIUROPTERUS KALEËNSIS*. (Small Formosan Flying Squirrel.)

*Sciuropterus kaleënsis*, Swinhoe, P. Z. S. 1862, p. 359.

Mountain-forests of North Formosa. I know no species of this form from South China.

54. *PTEROMYS GRANDIS*. (Large Red Flying Squirrel.)

*Pteromys grandis*, Swinhoe, P. Z. S. 1862, p. 358, pl. xlv.

Found in the north and central mountain-forests of Formosa. I have received it from various localities in the wilder parts of that island.

55. *PTEROMYS PECTORALIS*, sp. nov. (White-breasted Flying Squirrel.)

General colour a rich rufous; tail lighter, with brown at tip;

breast and streak down the centre of the belly white. Length from snout to root of tail 20 inches; tail 15, soft and bushy. The red fur of the body is sparsely sprinkled with white hairs. The fur is soft, moderately long, and much in character with that of *Pt. grandis*; in some lights it shows very brown.

A specimen of this fine species was brought to me at Takow, S.W. Formosa, in December 1865. It seems confined to the southern mountains of Formosa.

56. *MUS BANDICOTA*, Bechstein (Linn. Trans. viii. t. 18). (The Bandicoot Rat.)

*Mus nemorivagus*, Hodgson.

*M. setifer*, Horsf. Zool. Res. in Java.

I have never observed the Bandicoot in China; but in Formosa, on the high road from Takow to the city of Taiwan, it was very abundant, living in holes at the foot of the hedges that line the way. I have not seen them in the towns. It would appear likely that this Rat was introduced into Formosa when the Dutch were in possession, in A.D. 1630.

I have the skin and skull of an adult from Formosa; the former measures from snout to root of tail 11.5 inches, tail 6.75; ear 1.1 in length. The skull agrees with specimens from India.

57. *MUS DECUMANUS*, Pall. (Commercial Rat.)

*Mus decumanus*, Swinhoe, P. Z. S. 1864, p. 382.

Abundant in all large towns in South China and Formosa.

The white and pied varieties of *Mus rattus*, L., are to be seen in cages in the towns; but these are imported.

58. *MUS INDICUS*, Geoffroy. (Indian Rat.)

*Arvicola indica*, Gray; Hardwicke, Ill. Ind. Zool. i. t. 11.

My largest specimen from Formosa is 10.75 in length, tail imperfect, ear .66. A smaller one, length 7, tail 5.25. Colour above light chestnut-brown; most of the hairs broadly tipped with black, giving in the adult a streaky appearance to the back. Long fine moustaches on muzzle white, short ones black. Sides of muzzle, feet, and underparts dingy white, with a tinge of yellow. Tail sparsely covered with short spinous bristles, brown on the upper, white on the under surface of the tail.

In the city of Taiwan, Formosa, this large Rat was nearly as common as the Commercial Rat, and seemed to associate with it. I have not noticed it in the towns of the Chinese main.

59. *MUS ALEXANDRINUS*, Geoffroy. (South-European Rat.)

Adult male measures 8.6, tail 6, ear .7. This species is a good deal like the ordinary grey Rat, but has longer and richer-coloured pile, the ear is larger and more oval, the feet smaller, and the tail proportionately longer, and with much more short hair, especially near the tip. Upper parts dark yellowish brown, with many of the

hairs on the back and rump broadly tipped with black. Underparts dingy, tinged with ochreous. Moustache-hairs long, fine, and dark. Identified by Dr. Peters.

This Rat is found in country villages and outplaces about Amoy, and would seem to be an earlier introduction than the *M. decumanus*, from the face of which it has probably retired. The latter is the only species one sees in the town. It is difficult now to discover what were the House-rats of China before the introduction of the three last-named species. In villages and country towns, where the latter have not established a footing, Country-rats, which often scale trees, are found entering houses and running about the streets. In Formosa, where the Commercial Rats are not so widely extended, several species of these Country-rats occur; but in China I have as yet only noticed the *M. rufescens*.

60. *MUS COXINGA*. (Spinous Country-rat.)

*Mus coxinga*, Swinhoe (errore *coninga*), P. Z. S. 1864, pp. 185, 382.

Most numerous in the north of Formosa, less so in the south-west. I have not heard of it in China. Does not appear to enter large towns, but is found abundant in villages of the interior, to which the bigger Rats have not reached.

61. *MUS RUFESCENS*, Gray. (Chestnut Country-rat.)

*Mus flavescens*, Elliot.

This species was determined by Dr. J. E. Gray from specimens I brought home in 1862. It used to occur in the gardens at Amoy, and I have several times seen it running up and down trees in the daytime. I jotted down the following note on a specimen I shot at Amoy on the 17th May 1859:—Length of body 4·3; tail 3·8; head 1·5; ear ·7, large and oval. Fur short and soft, with a few long soft hairs interspersed. Moustache formed of long, delicate, black and white hairs. Upper parts pale reddish brown, ochreous about the head; underparts whitish; all the under-fur slaty grey. Tail scaled as usual, and set with many short pointed setæ.

This Rat is found also in many parts of India. I have not noticed it in Formosa.

62. *MUS CANNA*, sp. nov. (Silken Country-rat.)

*Mus* —?, Swinhoe, P. Z. S. 1864, p. 382. no. 26.

♂. Length 5·5; tail 5·25; ear bare, ·6 high, oblong, rounded at tip. Hind foot from tarsal joint 1·4. Hair short, soft, and mouse-like. Front teeth narrow and slender, with orange surface. Upper parts and legs brown, tinged with light chestnut, more conspicuous on the head and along the sides; underparts dingy ochreous; tail light brown, nearly naked, with minute inconspicuous setæ. Under-fur light slaty. It resembles the immature of *M. indicus*, but has smaller feet, and a soft silky pelage.

A Rat affecting villages in the country near Tamsuy, Formosa, and ascending trees.



63. *MUS LOSEA*, sp. nov. (Brown Country-rat.)

♂. Length 6 inches, tail 3·75. Teeth broader than in the last, and of the same colour. General colour of upper parts a rich brown, many of the hairs of the head and upper parts tipped with black, giving a dark appearance in some lights; fur soft and moderately long; under-fur dark slate-grey. Underparts dingy whitish; legs brown, with a streak of whitish on each edge of fore foot. Ears moderate, naked. Moustache rather short. Tail brown, with minute black setæ scarcely visible.

This is also a Country-rat at Tamsuy, Formosa.

64. *MUS NINGPOËNSIS*, sp. nov. (Short-eared Field-mouse.)

Length 3·25; tail 2·75. Lower incisors longo-triangular. Ear ·35, with short hair. Upper coat rich chestnut-brown, with deep slate-coloured under-fur; lower parts and feet white. Moustache-bristles short and very fine. Fore foot minute; hind foot ·7 from tarsal joint. Tail light brown above, whitish below, with minute scattered white hairs.

This little creature I picked up at Ningpo, in the consulate garden. It is a field-mouse; and "is," says Dr. Peters of Berlin, "nearly related to the European short-eared mice, *M. agrarius* and *M. minutus*, being larger than the latter, and without the dark dorsal streak of the former."

65. ? *MUS BADIUS*, Hodgson. (Long-tailed Field-mouse.)

*Mus* — ? , Swinhoe, P. Z. S. 1864, p. 382. no. 27.

This long-tailed Field-mouse, with chestnut upper and whitish underparts, allied to *M. sylvaticus*, L., of Europe, appears to have a wide range in China, if I am right in identifying the one I got at Tamsuy with that I saw in Hainan. Unfortunately both the specimens I picked up were too mangled to preserve. I have therefore not been able to identify it.

66. *MUS ARGENTEUS*, T. & S. Faun. Japon. (Yellow House-mouse.)

Mr. S. Bligh, at Canton, gave me a small fawn-coloured mouse, with light under parts and rather long tail, which answers well to the species described in the 'Fauna Japonica.' I have not seen it from other parts of China.

67. *MUS MUSCULUS*, L. (Common House-mouse.)

*Mus musculus*, Swinhoe, P. Z. S. 1864, p. 382.

Occasionally seen in houses both in South China and Formosa; probably introduced. Black and white varieties are often kept by the Chinese; these are brought from the Straits.

68. *RHIZOMYS CHINENSIS*. (Chinese Bamboo-rat.)

*Rhizomys chinensis*, Gray, P. Z. S. 1831, p. 95; Ill. Ind. Zool. t.

This large Bamboo-rat was procured by Mr. John Reeves at Canton. I have not heard of it from other parts of South China.

69. *HYSTRIX SUBCRISTATA*, sp. nov. (Subcrested Porcupine.)*Hystrix*, sp., Swinhoe, P. Z. S. 1864, p. 378.

I had often heard of a Porcupine occurring both at Swatow (province Kwangtung) and at Foochow (province Fokien), and knew that it was an animal well known to the Chinese as the "Bristly Pig" (Court dialect, *Haochoo*; Amoy, *Ho-te*); but it was not till May 1867 that I procured specimens. One of these was brought to me alive, and I shipped it for the Society; but it got overfed by the passengers, and died before the vessel left the port. The other specimen, a skin with skull, I have brought home. The skull is very similar in form to the two of *H. hodgsoni*, Gray, in the British Museum, and is like in form of teeth. It is the skull of an old animal, whereas the Museum specimens have open sutures, and show juvenility. It is larger, and exhibits differences of detail; but it is questionable whether these may not be attributable to advanced age. Judging from the skull alone, one might be inclined to identify our animal with the Nepaul species; but the external form of the Chinese Porcupine displays a conspicuous occipital crest, which is entirely absent in the other. Hodgson and other zoologists lay great stress on the want of this crest (see Waterhouse, *Mammalia*, iii. 461); and the mounted skins in the Museum, both more than two-thirds the size of my specimens, bear no trace of it. My specimens, on the contrary, differing in age, *inter se*, have each a crest. I follow, therefore, Dr. J. E. Gray's advice, and separate the Chinese animal from its Nepaulese ally, though the question as to its distinctness will not be satisfactorily determined until we ascertain either that the Himalayan Porcupine has the crest when fully adult, or that the Chinese Porcupine is destitute of it in its younger state.

The following is a description from the living animal, corrected by help of the skin:—

Snout to root of tail about 28 inches; tail about 5, covered at its base by the protruding quills of the rump, and carrying a bunch of short white truncated quills on pedicles on the apical third of its length. Palm to end of nails 3 inches; sole to end of nails 4. Head brown, with rather bare brownish flesh-coloured cheeks. Iris deep brown. A few short scattered hairs round eyes. Ears oval, flesh-brown, sparsely covered with whitish hairs. Nose deep brown. Muzzle and lips with short brown hairs. General colour light purplish black, much deeper on the legs; white on the long hairs of hind neck, with a crescent-shaped mark of the same colour across breast. Head, legs, and belly clothed with short stiff bristles; neck, anterior half of back, and sides with short furrowed black spines from 1 to 3 or more inches long, ending in sharp points, thicker on the back, and tipped with yellowish. From the occiput spring long stiff black bristles, white on the apical half; and along the hind neck runs a bushy ridge of the same from 2 to 5 inches long, black, with more or less white. Hind part of back with long, thick, rigid quills, the longest about 9 inches, mostly white at base, with more or less white at tip; their central portions black, without

the usual white rings; interspersed among these are a few long thin quills, chiefly white, and reaching a foot or more in length. Skin below the quills flesh-white, sprinkled with scattered tawny hairs, which occur amongst the bristles as well. Footpads brown; claws brownish horn-colour.

The Porcupine occurs in Hainan (see *antea*, p. 233), but in Formosa I have never detected it. The Taiwanfoo Gazetteer (a Chinese work), however, includes it in its list of the natural productions of that island. It describes it as "covered with arrows like the quills of the Hedgehog, which make a rustling noise when the creature walks. These arrows it can dart at people, but not to a greater distance than from eight to ten feet."

#### 70. *LEPUS SINENSIS*. (Chinese Hare.)

*Lepus sinensis*, Gray, Hardwicke's Ill. Ind. Zool.; Swinhoe, P. Z. S. 1862, p. 359.

This small, coarse-haired little Hare is the only species in Formosa and South China. It is yellowish brown on the upper parts, the hairs being broadly tipped with black; a little white occurs above and behind the eye. Ears about the length of the head, with a light buff rim, and a blackish-brown apical spot on the hinder surface; a patch of light rust-colour on the hind neck; legs and flanks a lighter shade of the same; belly and inside of thighs yellowish white; tail brown on the upper surface, with a few black hairs intermingled; its under surface light buff; under-fur of coloured parts light slate-colour.

Hainan possesses a Hare of its own, my *L. hainanus* (see *antea*, p. 233, Pl. XVIII.), and North China the *L. tolai*, Pall., in company with the species under notice.

### UNGULATA.

#### 71. *SUS LEUCOMYSTAX*. (White-moustached Boar.)

*Sus leucomystax*, Temm. & Schleg.

In February 1869, Mr. Ludlam, an American gentleman at Shanghai, shot in the neighbourhood of that settlement two large wild Boars, and very kindly allowed me to take the skin and skull of one of them. This animal measured between five and six feet, and had a thin tail about ten inches in length; length of skull 18; ear 3.75 in height. The upper parts of its skin are clothed with coarse black bristles, broadly tipped with light yellowish brown, and from 4 to 5 inches in length, longest on occiput and along the back; the under-fur is yellowish brown, and like tow. Cheeks, under parts, and legs black; abdomen, between thighs, anal region, and tail dingy white, the latter with a black tuft at tip. The moustache-mark is formed by broad whitish tips to the black bristles of face. Ear small and pointed, with white-tipped black bristles inside and on anterior surface, behind with black bristles, on the upper half forming a low fringe, bare at base and on the portion of the head where the ear rests. The under-fur on the lower parts is short and scanty. Nose sprinkled with a few short stiff hairs. The face is



black, with the exception of the moustache-mark ; the top of the head and upper parts show light yellowish brown, and the under-parts black.

Fig. 1.

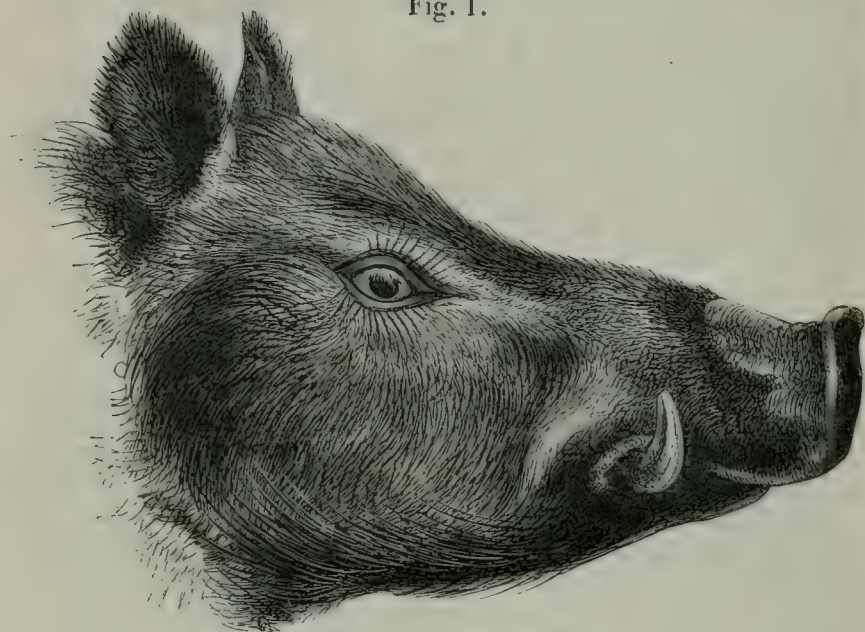
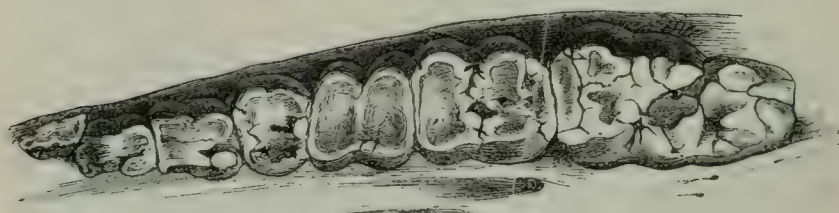
Head of *Sus leucomystax*.

Fig. 2.

Molar series of *Sus leucomystax*.

The want of warts on the face, the small ear, and the absence of a beard distinguish this animal at once from *Sus scrofa*, L. ; the want of a crest and beard and the black hoofs from *Sus indicus*, Schinz, of India.

This Pig is now abundant, and to be found of fully developed size, in a country where, before the devastations of the Taiping rebels, the land was highly cultivated and not a wild pig was known. The natives declare that they are merely the descendants of the pigs of their farmsteads, which were abandoned and ran wild.

The skin and skull from Shanghai I have brought home ; and Dr. Günther was so kind as to help me to compare the latter with skulls of *Sus scrofa*, L., of Europe, and *S. indicus*, Schinz, of India,

in the British Museum. *Sus scrofa* was at once distinguished by its nasal bones exceeding the head in length, and by the comparative greater distance of the palatal notch from the bulla. The Shanghai and Indian skulls, all of nearly equal size and age, were then carefully compared; and, with the exception of a rather more convex vertex in the former, there was no appreciable difference. Dr. Günther gave it as his opinion that, judging from the skulls, he would consider the Shanghai and Indian animals to be of the same species.

The authors of the 'Fauna Japonica' consider the *Sus leucomystax* of Japan the stock of the Japanese domestic Pig, from the resemblance of the two. The figure given in that work bears a strong likeness to our Shanghai animal; but the description of the species is too scanty for certain determination.

## 72. *SUS TAIVANUS*. (Formosan Wild Boar).

*Sus taiwanus*, Swinhoe, P. Z. S. 1864, p. 383; Gray, P. Z. S. 1868, p. 26.

*Porcula taiwana*, Swinhoe, P. Z. S. 1862, p. 360.

From the last, or what we take to be *Sus leucomystax*, the distinction of the Formosan animal is apparent both in skin and skull. I have the skin and skull of one animal about two-thirds grown from Tamsuy (N.W. Formosa), and a large series of the skulls of adults procured in the central mountains of the island from the native Indians, who use them to ornament their shrines. These skulls average in length a foot; and in many the disappearance of sutures and the full development of teeth prove maturity, and show that the Formosan animal does not attain the great bulk of the larger species. Dr. Günther kindly assisted me in comparing the skulls. In general characters they are allied to those of *Sus indicus*, but the crown of the head, or space between the orbits, is on the whole flatter than in the latter; and, with the exception of the last molar, the molars (including the premolars) are comparatively larger—indeed, so much so that their united length (though the skulls are greatly smaller, as 12 to 17) about equals that of the same in the other. Their tusks are comparatively smaller and weaker. The females, as a rule, have the vertex much broader than the males; but its breadth varies greatly in both sexes.

The chief difference in its external form appears to be in the shape of the ear, which is broad, rounded on the edge, and drawn to a point in the present species. The accompanying figures (1 and 3) will illustrate this.

In the 'Proceedings' of this Society for 1862, p. 360, and for 1864, p. 383, I have already described the appearance of this species when only a few weeks old, and when some months old. I will now describe the animal about two-thirds grown that I procured at Tamsuy.

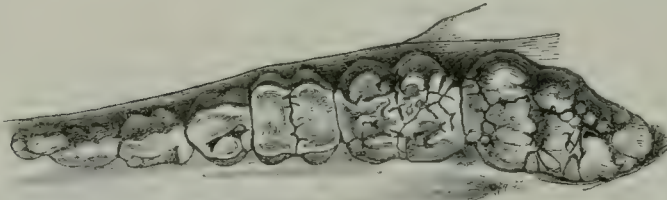
Length 3 feet, of tail 4 inches, of skull 10; height at shoulders about 21 inches; ear 2.5 long, 1.75 broad. Body sparsely covered with light yellowish-brown hair, intermingled with black bristles, which are longer, coarser, and more conspicuous. Ear short and broad, produced to an apex, with some yellowish hair inside and on

anterior surface, and a few blackish hairs behind, the base of the hind part being naked, and no hairs overlapping on its upper edge to form a fringe. From the occiput along the back to beyond its centre runs a ridge of bristles about 3 inches long, for the most part

Fig. 3.

Head of *Sus taivanus*.

Fig. 4.

Molar series of *Sus taivanus*.

black, forming a dorsal mane. Moustache-streak scarcely visible; in the advanced stage of the youngling this is white and conspicuous; but the moustache-streak is no specific character, as many species of Pigs have it more or less. Tail dressed with a few whitish hairs, with long black bristles at its tip. Hoofs brownish black.

The Taiwanfoo Gazetteer speaks of a much larger Pig inhabiting the island than the wild species appears to be. But, as in many other animals he speaks of, the Chinese author either brings his notions from China, or spices his history with exaggeration. He says, "the Yay-che (or Wild Pig) has the ears and tail rather small; its hair is bristly and of a brown colour; and it differs somewhat from the domestic Pig. *The largest are as big as a cow* (meaning, however, a small Chinese Cow) with *enormous* tusks projecting beyond the lips. It gashes trees and can break them down. Its



strength can oppose the Tiger. When enraged it will wound people with its tusks, abruptly breaking their ribs or goring their bellies. It rushes on its object like the wind. Hunters dare not shoot them."

The Chinese colonists have introduced their black hollow-backed breed of Pigs from South China; and among the villages of the plains you see none but these. At Takow a European imported a large white English tame boar, and it was allowed freely to cross with the Chinese Pigs; and an improved piebald breed has been the result, and has shown itself perfectly fertile when crossed with the sire, with one another, and with the Chinese Pig.

In Ogilby's '*Atlas Chinensis*,' ii. p. 8, we read that on the arrival of the Dutch in Formosa in the early part of the seventeenth century, when the Chinese were just beginning to colonize, every aboriginal "woman had commonly a great Pig running after her, as we use to have a Dog." Thus before the islanders had intercourse with the outer world they had a Pig of their own, which is still found among the tribes of the central mountains. These are curious animals, of a chestnut-red colour throughout; but I have occasionally seen examples patched with white. The young of this breed are also red, the skin and all the soft and horny parts being stained with more or less of the prevailing colour. From the form of this Pig and the small size and shape of its ear, I should think that it is doubtless derived from the wild stock of the island. The traditions of the natives confirm this impression; and the Pig was the only domestic animal they were found to possess when the island first came under European observation. But why should domestication have changed the animal to a red colour instead of to black and white, the usual colours that first develop under its influence? As a rule animals in their variability have a less tendency to erythrism than to either albinism or melanism; but domestication in this species has inaugurated change by developing the first in preference to the other two. The reason why, I cannot divine. I have found this red Pig cross readily with the Chinese black Pig; and the young in such cases appeared with indications of the stripes of the young wild Pig. But this I take to be due to the intermingling of the colours of the parents, and would probably have been carried into maturity had the offspring lived. My time was unfortunately too short to continue experiments of this kind; so I sent several of the red Pigs to England in the hope that somebody at home would take the matter in hand. But my specimens were not hailed with a welcome.

From the savages of the east coast of Formosa I received a pair of Pigs, black, white, and red, with moderate-sized ears, long face, and long bristles on the upper parts. These looked very like a cross between the red Pig and a domestic English Pig; and it is not impossible that some ship may have supplied to the natives on that coast the progenitors on the one side. The skull, however, of this Pig shows no great difference from that of the wild stock of the island, except in having a more prominent forehead and in the greater length of the bones of the face.

Whilst at Amoy I received from Chefoo (North China) a strange variety of tame Pig, with a piebald woolly coat, the young of which

called to mind some breeds of Rabbits. This Pig also bred freely with the red Pig, the offspring partaking of the characters of both parents.

#### RUMINANTIA.

##### 73. *HYDROPOTES INERMIS*. (Hornless River-deer.)

*Hydropotes inermis*, Swinhoe, P. Z. S. 1870, p. 89, Pls. VI. & VII.

This is the hornless so-called Hog-deer that resorts to the islands of the Yangtze near Chinkiang, and is sold for venison in the Shanghai market. I have not noted its occurrence elsewhere in China. M. Alphonse M.-Edwards has pointed out to me that in the shape of its skull and form of teeth this animal approaches the fossil *Dremotherium feigneuxi*, Geoffroy, from the Miocene of France.

Hainan produces a Mouse-deer, which I have made out to be the *Tragulus meminna*.

##### 74. *CERVULUS REEVESI*. (Reeves's Muntjac.)

*Cervulus reevesi*, Ogilby, P. Z. S. 1838, p. 105; Swinhoe, P. Z. S. 1862, p. 361.

Found from Canton to Ningpo and in Formosa. In Hainan it is replaced by the allied Indian form, *C. vaginalis* (Bodd.).

##### 75. *CERVUS PSEUDAXIS*, Eydoux & Souleyet. (The Formosan Spotted Deer.)

*Cervus taiwanus*, Blyth, J.A.S. xxxix. p. 90; Sclater, P. Z. S. 1860, p. 376, et 1862, p. 152, pl. xvi.; Swinhoe, P. Z. S. 1862, p. 362.

In the 'Transactions' of the China Branch of the Asiatic Society at Hongkong for 1847, the President (Dr. Bowring) is reported to have said (p. xix) as follows:—"Keying sent me from Canton an adult male and female and a fawn of what I had hoped, before they arrived, might turn out a new species of Deer; but they proved to be identical with the Fallow Deer which we have at home." This led me to suppose (P. Z. S. 1864, p. 169) that the *C. dama*, L., was also an inhabitant of China; but I have since visited the Viceroy's gardens at Canton, where some of the Deer still remain, and find that all in those grounds belong to the Formosan species, and have been bred from individuals introduced from the island. I was also misinformed as to the occurrence of *Cervus axis* in China. The animals of this species in Messrs. Jardine, Matheson, & Co.'s gardens in Hongkong (P. Z. S. 1864, p. 169) were brought from India, and not from Hankow. In Hainan the *Panolia frontalis* (Hodgson) (*Cervus eldi*, Guthrie) is found; but I have not heard of any species of spotted Deer occurring in China south of the river Yangtze. The *C. pseudaxis* is restricted to Formosa; North China produces a larger allied species (the *C. manchuricus*, mihi), and Japan a smaller form (the *C. sika*, Temm. & Schleg.).

The Formosan species has now for some years been a constant inhabitant of the Society's Gardens, and has bred. Its development and change of coat have been observed and will shortly be illustrated by figures in the very excellent paper that Dr. Sclater has given to

the 'Transactions.' I have only a few notes to offer on the appearance of some skins that were brought to me at Takow. One was a stuffed skin of a fawn about 19 inches in length. Its colour was rich yellowish brown, deeper on the back, and paling on the sides and legs; face redder, with a blackish-brown forehead, and dark brown behind the ears. Inside of ears, underparts, inner sides of legs, and under tail pure white, the throat and neck above being tinged with red; upper surface of tail red. Two rows of yellowish spots flank the back on either side, with a few irregular ones outlying on the shoulders and hind quarters.

Three skins of adult animals are in different stages of coat:—the winter, when the hair is brown finely mottled, the list down the back showing itself in a deep brown line becoming black over the tail, the underparts a dull white; hair not long and spots scarcely visible. The autumn dress, evidently of a young male from its shagginess and coarseness; the list down the back much blacker, the brown tinged with a rich red, and the white spots beginning to fade. The third skin shows the appearance of the female in summer—of a rich orange-buff, browner on the back, with a deep black dorsal ridge, the white spots pure and conspicuous with a wavy white line of coalescing spots below from fore to hind leg, under which the buff again appears, but very pale, and is succeeded by the white of the underparts. In all three skins the upper surface of the tail and the rump at its base are black, the lower surface of the tail and the inner side of buttocks pure white.

The following Chinese notice on the Formosan Deer from the Taiwanfoo Gazetteer is perhaps worth recording:—"The Formosan hills have no Tigers; hence Deer are very numerous. In former years the whole island was given up to hunting-ground by the aborigines; now it is ploughed and sown by the Chinese settlers, so that fair fields extend as far as the eye can reach, and the Deer have betaken themselves to the mountains. They are there hunted and captured; but the horns of the Formosan species are thin and soft at the base, and not equal to the plump branchers from Leaotung Province (North China). A hundred pairs when roasted will only produce about twenty pounds of medicinal glue. Though Deer abound, you may seek a piece of venison in vain in the markets. At the winter and spring festivities, however, the natives cut venison up into square blocks weighing over a pound each, and, after steeping them in brine, forward them to the departmental and district cities. The colour of the vension so preserved is black, and its taste changed; it is not fit to pick up with chop-sticks; and yet its price is no trifle.

"Deer by their horns record their years, each fork on the antler signifying one year, much as the age of horses is recorded by their teeth. The aborigines shoot Deer for food; but no one has ever met a buck carrying seven or more forks on the antlers. It was declared in former days that Deer were fairy animals of great longevity; and it was stated that at the age of 500 they were white, and at 1000 black. But these stories must be fables; for the natives at Chuhtsan shot a small Deer of a pure white with only two forks to its antler. This albinism cannot, therefore, be otherwise than due to an accidental



variation in the colour of the hair. Three years after birth the Deer commences to horn. At the end of the year the horns drop away as do the milk-teeth of infants. Other horns appear in their place, which are retained throughout the animal's lifetime; but every year an extra fork is added.

"The teats appear in the doe at the age of four months. Just before they show she gets extremely fat. When big with young, her skin is soft, smooth, spotted, glossy, and very lovely. As soon as the doe has finished suckling and observes her fawn getting to maturity, she deserts it and repairs to other hills, fearing that her own issue might entertain an improper affection for herself. Animals do not confuse the ties of consanguinity, the horse excepted. The stallion, however, when he does commit incest with his mother, soon after dies. The doe deprives her offspring of the opportunity by setting a distance between herself and fawn; for she deserts it and betakes herself afar."

I have lately examined the type specimens in the Paris Museum of *Cervus pseudaxis*, and I am convinced that they belong to the Formosan species.

#### 76. CERVUS (RUSA) SWINHOOI. (Swinhoe's Deer.)

*Cervus (Rusa) swinhooi*, Selater, P. Z. S. 1862, p. 152, pl. xvii.; Swinhoe, P. Z. S. 1862, p. 364.

In the central ranges of Formosa near Mount Morrison this brown deer is very common; and on a visit I paid to the wild tribes of these parts in February 1866 I found them hunting the Deer with dogs\*. A place is cleared in the forest, where a party of men hide armed with matchlocks; the dogs yelp after the deer and drive them into the open, where the hidden sportsmen get easy shots at them. The son of the chief with whom I was staying had just returned from a successful battue with the robust antlers and flesh of a large buck. I induced him to return for the head, which he had thrown away on the field. I was thus enabled to secure a fine skull for the British Museum.

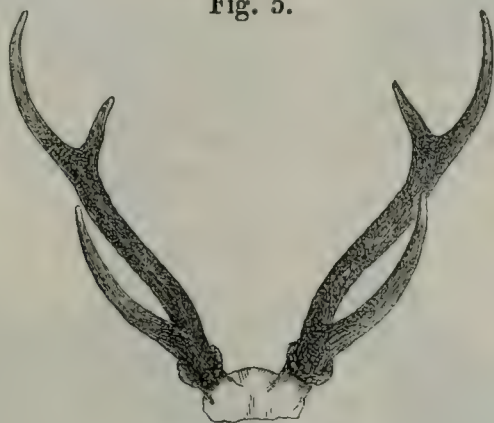
The young of this species about half-grown is reddish brown, with the tail bushy and black, but reddish at its root. Sides of the body paler, and the belly blackish brown. Legs pale towards the hoofs; the latter black. Under surface of tail, abdomen, and inner sides of hind legs down to middle of shank yellowish white, the breast and belly being blackish brown. Under surface of head and neck mottled whitey brown. Crown of the head with many of the hairs tipped with black; from the occiput a dark line runs down to the base of the tail. Ears blackish brown, tipped and margined with ochreous white, and whitish on their insides.

The adult, in summer, has its coarse hair deep brown, faintly mottled, rufous on the rump; between the fore legs and the thighs ochreous white; tail bushy and dark. In winter it becomes a deeper brown. The Society's Gardens have had two or three examples of

\* The Dogs in the possession of these aborigines were of the ordinary Chinese breed procured from the colonists.

this animal alive ; and Dr. Selater is doing it justice in his paper for the 'Transactions.' Fig. 5 represents the antlers of a mature individual which I procured in South Formosa.

Fig. 5.

*Cervus swinhoii.*

I have not heard of any species of *Rusa* occurring on the main of China ; but in Hainan the *C. hippelaphus* appears to abound. From North China we have the *Cervus xanthopygus*, A. M.-Edwards, the *Elaphurus davidianus*, A. M.-Edwards, and the *Capreolus pygargus* (Pall.).

77. CAPRICORNIS SWINHOII. (Swinhoe's Goat-antelope.)

*Capricornis swinhoii*, Gray, Ann. & Mag. Nat. Hist. ser. 3, vol. x. p. 320 ; P. Z. S. 1862, p. 263, pl. xxxv. ; Swinhoe, P. Z. S. 1862, p. 361.

Found throughout the hilly ranges of Formosa.

The young have the ears white on their anterior surface or, sometimes, more or less white throughout. The region of the lips is whitish ; and the chin and throat light buff, with a brown spot on the former. The abdomen and between thighs are also light buff, and the feet lighter red. The hair of the body is shorter ; they are otherwise like the adult.

The adult is of a deep brown throughout, tinged with red. The crown and a line down the back deep brown. Lips whitish. Chin and throat chestnut, with a brown patch on the former. Ears light buff inside, reddish brown behind. Abdomen brownish buff. Feet deep chestnut ; hoofs black. Hair about 1.5 inch long, thick-set, harsh, and a little wavy. It does not acquire horns till it is nearly full-grown.

The nearest ally to this curious Antelope appears to be the *Capricornis sumatrensis*, of which there is a specimen in the British Museum.

*Capricornis crispus* (T. & S.) of Japan appears to have greater affinity with the newly described *C. caudatus*, A. M.-Edwards, from Peking.

78. *BOS CHINENSIS*. (South-China Cattle.)

The small Yellow Cow of South China is a peculiar race, combining, as it seems to do, the characters of *Bos indicus* of India and *Bos taurus* of Europe. It has the head and dewlap in character with the former, with a small hump, the straight back, and hind quarters of the latter. Mr. Blyth maintains that it is a cross between the two; and this opinion may perhaps be borne out by the fact that the North-Chinese large cattle are certainly like our European ordinary breed. In the 'Taiwanfoo Gazetteer' I read this passage under the head "Yellow Cow":—"The neighbouring hills have this animal in

Fig. 6.

*Bos chinensis*.

abundance. They are caught and tamed, and are trained for use in the ploughing of fields and drawing of carts;" and further on, "Formosa has an abundance of wild cattle, occurring in herds of hundreds and thousands. When it is desired to capture them, a wooden stockade is erected with four sides, in one of which is left a door. The cattle are driven towards it until they all enter, when the gate is shut on them and they are barred in and left to starve. They are afterwards by degrees haltered and bridled, and treated to fodder and beans, until they become not different from domestic cattle." Were these wild cattle indigenous to the island, or were they simply feral descendants of an introduced race? If the latter, who introduced them? The Chinese, when they commenced to settle in Formosa, found enormous wild herds already there. The



Fig. 7.

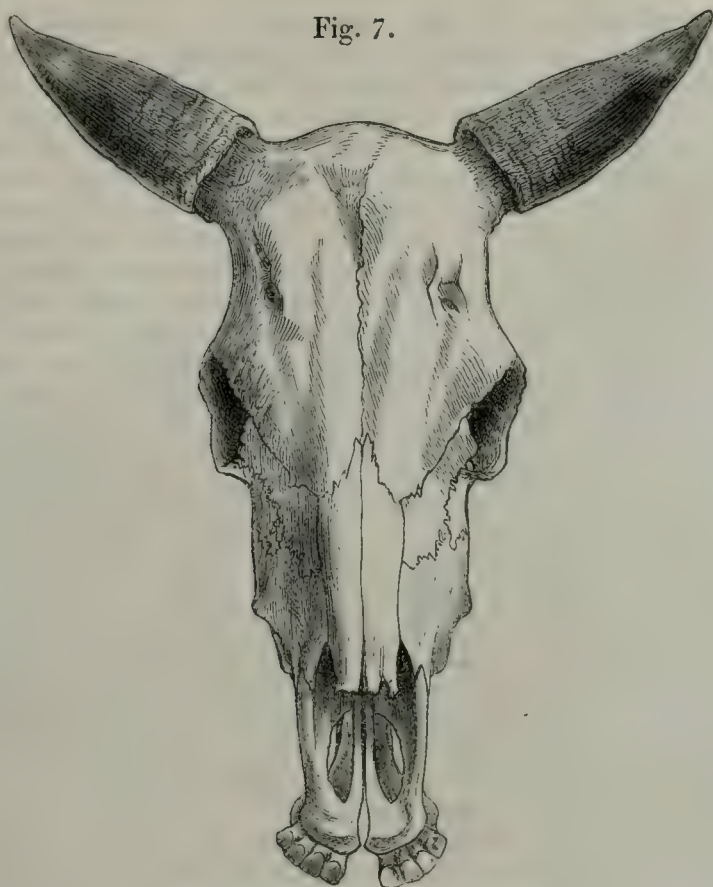
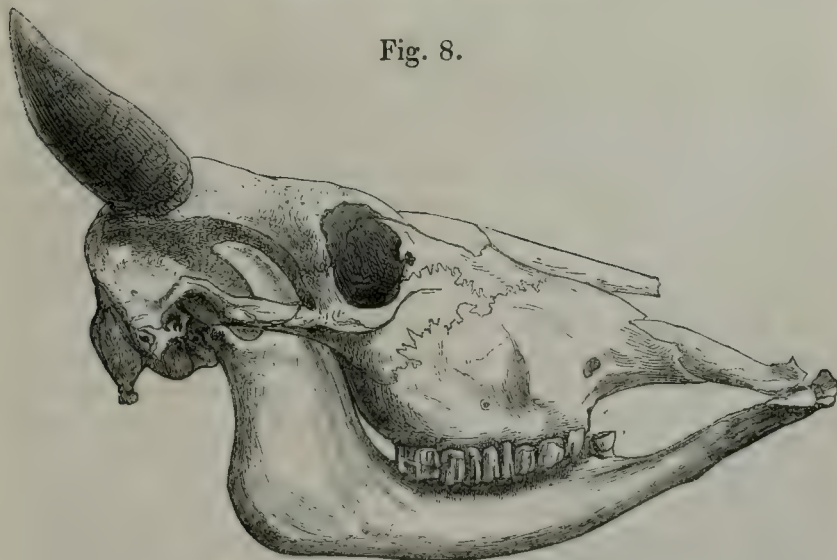
Top view of skull of *Bos chinensis*.

Fig. 8.

Side view of skull of *Bos chinensis*.

wild natives did not use them except for food ; and it is not likely that they could have conveyed domestic cattle in the small canoes by which they straggled to Formosa. If they had, we should expect to find some peculiar breed, whereas, as our author tells us, they "were not different from (South-China) domestic cattle." To show that they were derived from the Chinese breed, we should have to believe that the Chinese had earlier communication with the island than their records declare. I take it, then, that the wild Formosan Cow was indigenous to Formosa, and of the same species that ranged throughout South China, from which the present domestic cattle of the south are derived. I have not heard of its being found wild in the present day in China ; and in Formosa the wild race has almost, if not quite, disappeared. In the central mountains they are kept in a semi-wild state, and from there I procured the skulls of an adult male and female and a live bull. The bull I had photographed and now exhibit its portrait (fig. 6, p. 648) ; and the skulls are deposited in the British Museum. The figure shows a better and stronger build than ordinary South-China Cattle possess, and proves the two to be of the same race. The Chinese have done little to improve their breed of cattle ; and you may see this kind in the country from Canton to Ningpo unchanged in form or shape of horns, but, as a rule, a little smaller and more degenerate than the wilder animals from the Formosan mountains. The skull of the bull (figs. 7 & 8) measures 19·5 inches in length ; the horns are somewhat conical, measure 8 inches in length each, and stand outwards and backwards. The animal is a rich chestnut-brown with whitish underparts and feet. Its horns and hoofs are black.

I have never heard of the Buffalo occurring wild in either China or Formosa. The domestic variety, used as a beast of burden by the Chinese, is short-horned and apparently the same breed as that found in Manilla.

#### EDENTATA.

##### 79. *MANIS DALMANNI*, Sundevall. (Scaly Ant-eater.)

*Manis (Pholidotus) dalmanni*, Gray, P. Z. S. 1865, p. 366 ; Swinhoe, Zoologist, 1858, p. 6224 ; P. Z. S. 1864, p. 381.

In June 1867, at Amoy, I purchased a family of Scaly Anteaters, consisting of the mother and father and three little ones. The old ones had dim watery eyes and were rather slow in their movements, walking on the sides of the hind feet and on the tips of the claws of the fore feet. The young were brighter-eyed and active, running about the room in all directions, standing on their hind legs and assuming a variety of curious positions ; but their habit of walking was essentially the same as in the adults. I kept them all alive for some days ; but I never heard them utter any cry, not even a moan.

The adult male measured in entire length 33·25 inches ; tail 13·5 ; tip of nose to upper corner of ear 3·1 ; height of ear 1·1 ; across head from ear to ear 2 ; anterior corner of eye to tip of nose 1·9 ; breadth of eye ·5 ; breadth of gape ·9, of muzzle ·7, of nose ·5 ; length of sole of hind foot 2·4, greatest breadth 1·4 ; length of middle claw of fore foot 2·1.

Head, ears, the under and all fleshy parts milk-white, or the colour of cooked pork, the nose and muzzle having a tinge of purple. Cheeks, throat, and underparts sprinkled with shortish stiff coarse hairs of a light reddish sandy colour. A few lighter-coloured bristles project from under the vertex of each scale from the occiput to the tail. Scales short and broad, and usually purplish brown for two-thirds of their length, the tip portion yellowish-grey horn-colour. On the sides of the body, and especially along the legs, the scales are placed far apart, exposing the white skin. The small scales on the sides of the fore legs are often sunk beneath the level of the bulging skin. Besides the basal vertical striæ on the scales, there are often (on the large scales chiefly) two or three transverse furrows near their bases. The large scales are held to the skin by a fleshy nipple-like pimple on each side of them adhering to their basal angles. Claws dingy yellowish.

A young male measured 21.75 in entire length; tail 8.75. Head comparatively shorter and deeper than in the adult. Face pinkish white, washed about the muzzle and borders of ears with blackish grey; nose and lips purplish grey. Tongue about 2.75 long, .45 broad, narrowing to .2, and rounded at tip; composed of a vermiform centre with fleshy side-rims, gradually flattening towards tip. Bare parts milky white. Reddish sandy hairs occur about the lower lobe of the ear (which is shaped something like the human ear), the throat, and underparts; in the first two longer and more numerous than in the adult. Longer and coarser whitey-brown hairs spring in tufts of five or so from under each scale. Scales more uniform and compact, even on the legs, than in the adult, more striated longitudinally and transversely, and much darker in colour, resembling the side-pieces of an acorn-barnacle (*Balanus*). Many of the lateral scales of the neck, body, and legs carinated; general colour of scales glossy blackish brown with a tinge of sea-green, sometimes tipped, edged, and marked along the keels with light horn-colour. The basal pimples that support the scales of the adult are not apparent in the young animal.

The three young ones differed in size and in the proportional length of their tails, and, I do not think, were of the same birth. Only one of them was suckled by the mother. They seemed to be of different ages. A pregnant *Manis* that I once examined carried only one young one; and I do not think that they usually have more than one at a birth.

An adult male from Formosa is about a third larger than the ordinary run of Amoy specimens. It has longer, narrower, and darker scales; and those on the legs are compact and imbricated down to the toes. I at first thought that this "Tayowan Devil," so called by the early Hollanders, was of another species; but I can detect no differences in its skull. The size and colour of the scales I find very variable. The dark colour of the Formosan specimen is like that of the young Amoy animal. This may be owing to the difference of the earth in which it lives. The Amoy and Formosan adult skulls both have complete malar arches; but in the skulls of the Amoy young ones these gape apart, the unossified cartilage between having



been cleaned away. The Formosan *Manis* is constantly of a much larger size than the South-China animal; and it is not unlikely that on further study it will be found to be distinct.

The adult Amoy male above referred to I have placed in the College-of-Surgeons, and the rest of my series are in the British Museum.

A note on the behaviour of this animal in confinement will be found in the 'Zoologist' for 1858 (*l. s. c.*).

The *Manis* is not uncommon in many parts of Formosa, is abundant in the neighbourhood of Amoy, Swatow, and southern parts of China, extending to Hainan. How far it ranges north I have not ascertained.

#### CETACEA.

80. DELPHINUS (STENO) CHINENSIS, Osbeck. (South-China White Porpoise.)

*Delphinus (Steno) chinensis*, Flower, Trans. Z. S. vii. part 2, p. 151; Swinhoe, Zoologist, 1858, p. 6226.

This white Porpoise, which Professor Flower has so ably described (*l. c.*), is to be seen in all the rivers of South China, and probably extends into the Yangtze, where white Porpoises occur as far up as Hankow (750 miles from the sea). Above that port, and on to Ichang (1110 miles from the sea), we noticed a smaller and apparently different form, also white in colour. I have been told that black Porpoises occur at the mouth of the Shanghai river, and I have myself seen a school of small black Dolphins at sea north of Amoy (Swinhoe, 'North-China Campaign,' 1860, p. 10); but beyond their occurrence I know nothing more of them. I have never seen Porpoises of any kind off the coast or in the rivers of Formosa.

81. BALÆOPTERA SWINHOII. (Swinhoe's Fin-whale.)

*Balæoptera swinhoii*, Gray, P. Z. S. 1865, p. 725.

A large Finner-whale was cast on the sands of Formosa two miles below the port of Takow in 1862. In 1864 I collected all the bones of it that remained, and sent them to the British Museum. On view of these, Dr. J. E. Gray has established this species. Since then some more remains have been collected and sent home. This Whale resorts to the Hainan seas in winter, where the Chinese pursue it for the oil it yields. In summer it occurs in the Namoa straits and off the Port of Swatow. A party of Americans thought to establish a fishery at Swatow, but after one or two captures they gave up the scheme. They found the Whale useless for their purposes.

82. ? MEGAPTERA KUZIRA (Temm. & Schl.). (South-China Small Finner.)

One day at Takow in March 1865 I was roused by the cry of "Hai-yang" (or Whale), and heard that one had just been stranded. I crossed the harbour and made for the spot. On the road I met several parties of Chinamen returning laden with portions of the poor monster. On arriving at the spot I found little left beside the jaw and a part of the back; and even these were being hacked and

fought over. The creature must have been either sick or foolish; for it wandered close to the shore just round the rocks at the entrance of the small harbour. A Manillaman observed it, and, getting a hammer, rushed into the water and struck it a severe blow on the head. He then hailed some Chinese to assist in getting it ashore. It measured, I was told on tolerably good authority, about 20 feet, and had no fin on its back. I saw parts of its belly, and observed that it was plaited across. Its colour was of a leaden black above, and whitish beneath. I saw one man carrying away its pectoral flippers, and two others its tail. I seized a piece of the baleen and sent it to the British Museum, but it unfortunately never reached its destination. Viewed exteriorly, it was like a high comb, the teeth (so to speak) being about 3 inches high and set about one-sixth of an inch apart, worn into bristles at their tips. Viewed from inside, you saw nothing but close-set whitish coarse hairs or bristles. Examined separately, each plate of baleen was shaped like a lob-sided triangle leaning outwards, coloured blackish blue like ordinary whalebone, and broken up at the top for about an inch, and to a less extent along the inner edge, into coarse whitish hair. The width of each plate at the base was 1·25 inch. There was a sheen of purple about the dark parts of the animal, especially on the flippers and tail.

The gunboat 'Flamer' came into Takow a day or two after the occurrence above related; and her commander, Lieutenant Eaton, told me that he had met a large number of small Whales between our port and the Pescadores. He mistook them for a long line of breakers where the chart showed no shoal. He kept away, fearing that there might be some mistake in the chart, when some of the brutes began to throw their tails and cut antics in the water. He then saw that the danger was nothing more than a school of Whales. He said there must have been about fifty, most of them averaging 20 feet or more. He did not observe that they had any fin on the back. They spouted water.

From the nature of the baleen, our species must belong to the Balænopteridæ; and from the shape of its flippers and want of a conspicuous dorsal fin it must be a *Megaptera*. It is probable that it will be found to be the same species that occurs in the seas of South Japan.

10. Notes on Tortoises in the British Museum, with Descriptions of some New Species. By Dr. J. E. GRAY, F.R.S. &c.

(Plates XXXIII., XXXIV.)

The genus *Peltastes* in my paper on Tortoises, read in March 1869\*, contains many species which are not well defined; and therefore I

\* See P. Z. S. 1869, p. 171.





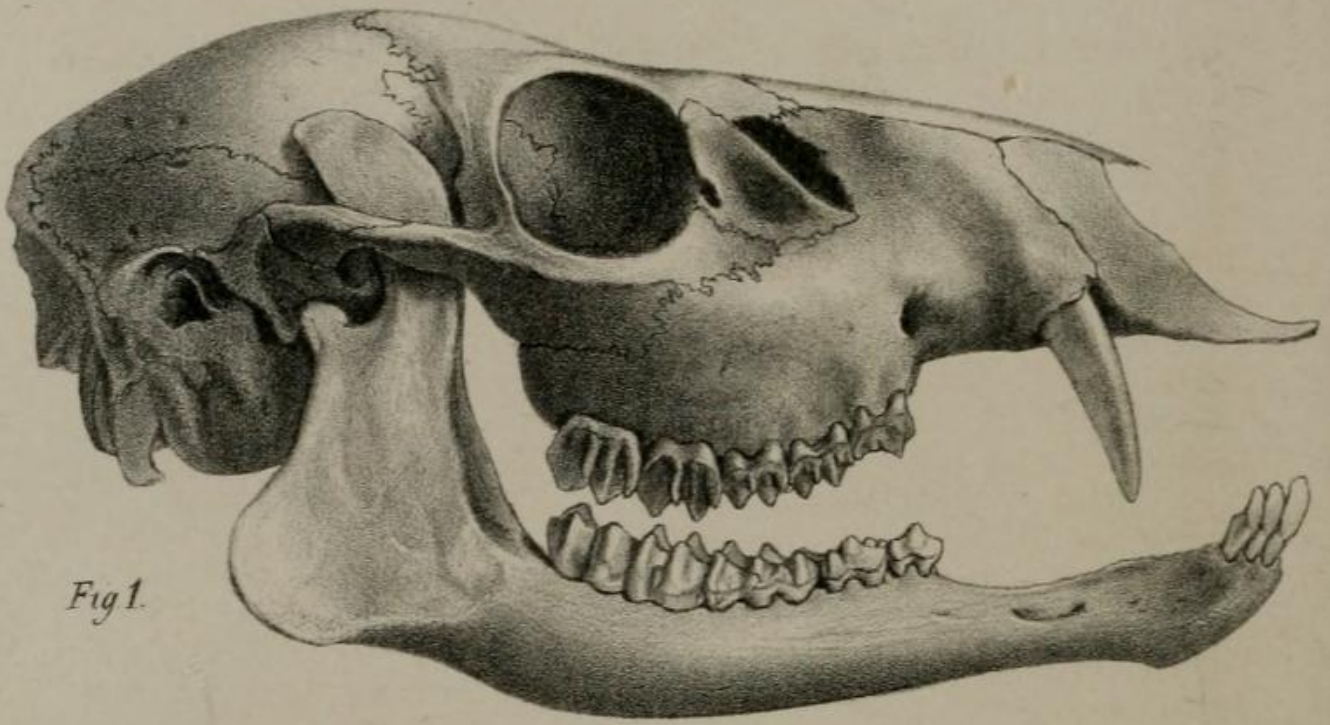


J. Wolf del.  
J. Smith lith.

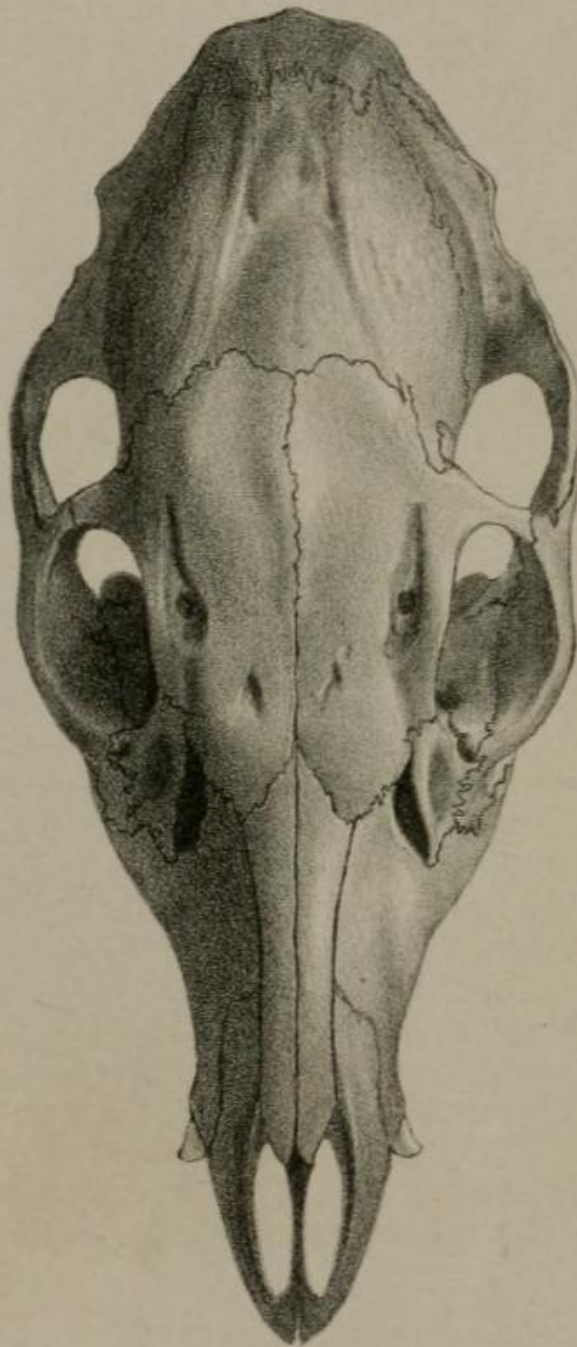
M. & N. Hanhart imp.

HYDROPOTES INERMIS.





*Fig 1.*



*Fig 2.*



ing to the boles or branches in various attitudes, and searching with its hard curved bill for insects under the decayed bark. When thus engaged it utters a great variety of chirps and guttural sounds, interspersed with short agreeable notes. It has also a continuous song, low and varied, with a peculiar ventriloquism in some notes which gives the listener a confused idea that the performer approaches and retires when singing. The first bird of this species I shot was but slightly wounded in the wing, and fell into a stream; to my great surprise it began singing as it floated about on the surface of the water, and even when I had taken it out continued to sing at intervals in my hand. I subsequently found a nest of this bird; it was about 7 inches deep, composed entirely of lichens curiously woven together, and suspended from the twigs of a low tree. The male and female fluttered round me, manifesting great anxiety (though there were no eggs in the nest), and uttering a rapid succession of notes, very different from their usual song. But what was most surprising in this singing to express their trouble was the close resemblance of every note to those of some other bird, generally of one of our common songsters (such as *Turdus rufiventris*, *Mimus calandria*, and others). In a few days I returned to the spot to secure the nest and observe them again, but found, to my sorrow, nest and birds had disappeared. Perhaps *Icterus pyrrhopterus* possesses the faculty of imitation; at the time I heard this pair I thought it could not be otherwise, but I have not observed them long enough to be positive. Certainly they are incapable of expressing their passions by harsh or loud notes.

"I am, Sir, truly yours,

"WILLIAM H. HUDSON."

The following papers were read:—

1. On a new Deer from China.

By R. SWINHOE, F.Z.S.

(Plates VI. & VII.)

While in Formosa I was informed by a gentleman there, who had lived at the port of Chinkiang, that a Hog-backed Deer, with coarse hair, was common on an island in the river Yangtze and afforded excellent sport to the European residents during the winter. From my friend's description, I supposed the animal to be *Hyelaphus porcinus* of India, and communicated the fact to Mr. P. L. Selater, who read my notice to this Society on the 27th June, 1865 (see P. Z. S. 1865, p. 510). Last winter I had the opportunity of visiting Shanghai, and found this so-called Hog-deer in the market, and then saw it to be quite a distinct species, without horns, and of great interest. I have brought home with me the skin and skull of a buck, and the skulls of two does. These I beg to exhibit to this Meeting, and to propose for this new Deer the specific term of *inermis*, from its hornless state, and to place it under a new genus, for which



I would suggest the name *Hydropotes*, or Water-drinker, from the love of the animal for marshy ground.

### HYDROPOTES, gen. nov.

General form of skull very similar to that of *Moschus*—there being no elevated ridges along the supraorbital margin, and the brain-case being narrow and somewhat elongate. *Lachrymal fossa* small, entirely confined to the lachrymal bone, the maxillary not participating in its formation. *Supraorbital foramen* situated in a groove extending further backwards than forwards, as in *Cervulus*. No prolongation of the frontal bones whatever.

The nearest allies to this genus are, as far as the cranial characters are concerned, *Pudu humilis*, of Chili, and *Moschus moschiferus*, L., of N.E. Asia. The Pudu has got a much larger and deeper lachrymal fossa, in which the maxillary participates; the distance of the lachrymal fossa from the *foramen supramaxillare* is much less than the length of the lachrymal fossa, whilst in this new genus the distance is much greater.

The affinity of this genus to *Moschus*, is shown by the fact that *Moschus* has no *lachrymal fossa* whatever—a character so general in the Deer group.

Upper canine teeth, in the male, tusk-like, as in *Moschus*, but not so developed; in the female quite small.

Incisors on the lower jaw eight, the two centrals large and flattened, the three lateral on each side smaller, graduating in size outwardly; all arranged in fan-form.

Molars unfortunately not fully developed in any of my skulls, though the animals were capable of breeding at this age.

The *crania* of the females are smaller, but show no peculiarities, except in the undeveloped nature of the canine teeth above noticed.

*Hair* coarse and stiff, combining the characters of *Moschus* and *Pudu*, as also do the *feet*.

### HYDROPOTES INERMIS, sp. nov. (Plate VI.)

Measurements taken from the stuffed skin of an animal about three-quarters grown:—Length from nose to rump 29 inches, of tail 3, of fore leg from shoulder 18, of hind leg 20, across the eye .7, across the nose .7; length of head 6.75, of ear  $3\frac{1}{2}$ , of canine tooth 1.1.

General colour light chestnut, stippled with black, redder on the head and back of ears. Round the nose, eyebrow, chin, and throat pure white. Inside of ear light buff, whiter near base; its outer edge, at tip, black. Neck paler, its under portion plain-coloured. Shoulder, fore and hind legs, and tail light brownish chestnut. Belly pale buff-white. The chestnut colouring of the upper parts deepens along the back and pales downwards on the sides.

The hair of the nasal region very short. At the corner of the lower lip springs a tuft of stiff white hairs. Bristles about the muzzle short and few. Eye small. Ears well clothed inside. Hair coarse and stiff, of the neck and rump the longest. Each hair of



the upper body is flattened, and undulates from side to side, or is zigzag in its length, giving it in some views quite a spiral appearance. I notice the same peculiarity in the corresponding hair of the *Moschus*. Each of these hairs in our animal is white from its base for the greater part of its length, then blackish brown, ending with a light chestnut tip; thus, the hairs overlapping each other, the chestnut tips give the general ground-colour, and the blackish rings the stippling.

*Fore leg.* Length of hoof in front 1.25, breadth of each segment .75; length of hind toe .75, its breadth .45, raised about .75 above the sole of the foot.

*Hind leg.* Length of hoof 1.18, breadth of each segment .63; length of hind toe .60, its breadth .45, raised above sole of foot 1.30.

The above description is taken from a buck bought in the market at Shanghai on the 30th November 1868, and consequently in its winter coat.

In coloration and outward appearance the little *Pudu* comes much nearer to our species than does the bristly-looking brown *Moschus*. It is also chestnut-coloured, stippled with black and red on the head and ears; but its rump and tail are red (which are not so in our animal), and the male carries horns. Dr. Günther has kindly assisted me in working out the affinities of this animal.

In the large riverine islands of the Yangtsze above Chinkiang these animals occur in large numbers, living among the tall rushes that are there grown for thatching and other purposes. The rushes are cut down in the spring; and the Deer then swim away to the main shore and retire to the cover of the hills. In autumn, after the floods, when the rushes are again grown, they return with their young and stay the winter through. They are said to feed on the rush-sprouts and coarse grasses, and they doubtless often finish off with a dessert from the sweet-potatoes, cabbages, &c. which the villagers cultivate on the islands during winter. They cannot, however, do much damage to the latter, or they would not be suffered to exist in such numbers as they do; for the islands have their villages and a pretty numerous agricultural population. Fortunately for the Deer, the Chinese have an extraordinary dislike for their flesh. I could not ascertain why; but it must be from some strange superstition, as the Celestials are otherwise pretty nearly omnivorous. The Deer are killed only for the European markets, and sold at a low price. Their venison is coarse and without much taste, but is considered tolerable for want of better; it is the only venison procurable in Shanghai. The animal itself gives sport to the gunner; and numbers are slaughtered every winter by the European followers of Nimrod, in the name of *sport*. Their numbers, however, do not appear to get much thinned; they are reported to be very prolific breeders. A friend of mine assured me that he witnessed the gutting of a female that was shot by one of his party on a late excursion, and that she was found to contain *six* embryo young. This single fact, however, is not sufficient to establish the ordinary gestation of this species; on the contrary, it was probably an extraordinary case; but it was the only



instance I could get of a pregnant specimen having been examined. The large number of immature animals usually seen in a herd of them seems to show that they have some means of reproducing not common to other Deer.

On my cruise up the river Yangtze with Admiral Sir Henry Keppel last year in H.M.S. 'Salamis,' we called at Chinkiang, and, taking on board some of the residents at that port, steamed a few miles further up, and landed at Deer Island for a little shooting. A goodly party of officers and others were with us, and the Deer were well disturbed that day; no bullets were allowed, for fear of accidents, and only fowling-pieces used with large shot. A large patch of rushes still stood, and there were plenty of Deer; but only *eight* were brought back to the ship, though doubtless many more were injured. They crouch in the reeds and long grass, admitting pretty close approach, and then, rising with a bound, spring away. They were generally put up singly or in twos and threes. In running they cock their ears, round their fore legs, bend up their hind legs, hog their rumps, and scurry away with little quick leaps, very much after the manner of a Hare. The heavy shot soon bowled them over. When they ran across the cultivated fields, the Chinese shouted after them and set their barking curs to pursue them.

The Chinese at Shanghai call this animal the *Ke*; but at Chinkiang they are named *Chang*—the classical term for the Muntjac (*Cervulus reevesi*). The Chinese dictionary compiled under authority of the Emperor *Kanghe* describes the *Ke* as "Stag-like, with feet resembling those of a Dog, has a long tusk on each side of the mouth, and is fond of fighting."

#### EXPLANATION OF THE PLATES.

##### PLATE VI.

*Hydropotes inermis.*

##### PLATE VII.

- Fig. 1. Skull of male *Hydropotes inermis*.  
2. Skull of female *Hydropotes inermis*.

2. On the Size of the Red Corpuscles of the Blood of *Moschus*, *Tragulus*, *Orycteropus*, *Ailurus*, and some other Mammalia, with Historical Notices. By GEORGE GULLIVER, F.R.S.

*Measurements, Scale, and Woodcut.*—The present, like all my former measurements, are given in vulgar fractions of an English inch. Of the scale to the woodcut each division of one-fifth of an inch is equivalent to one four-thousandth of an inch micrometrical or linear admeasurement, being the same scale as that to which the figures are engraved in the reports of my lectures, in the 'Medical





behind the tooth. The left tooth measures 6 inches in length,  $3\frac{3}{8}$  inches in width, and is  $1\frac{3}{4}$  inch thick. The space between the teeth measures  $7\frac{1}{4}$  inches. The limbs are very imperfect; all the smaller bones are missing; and there is only a part of one scapula. I did not find the pelvic bones.

This animal was captured about a year ago, near Lord Howe's Island.

8. Zoological Notes of a Journey from Canton to Peking and Kalgan. By R. SWINHOE, F.Z.S.

On my return from Hainan in April 1868 I visited Canton. In the market there three species of White Herons (*H. alba*, *H. garzetta*, and *H. intermedia*) were to be seen, with eyelids stitched together, walking about the counters of the bird shops—the bills of the first and last in different stages of black and yellow, changing from the winter to the summer colour—all with the nuptial plumes fully developed. Parrakeets with red cheeks (*Palæornis longicauda*?) were in abundance. The dealers told me that they were brought from the western portion of the province, down the west river. *Polyphasia tenuirostris* was often heard whistling in the neighbourhood. It has a quick undulatory flight as it flits from tree to tree, and has two other series of notes besides its ordinary call.

We pulled down the river and went on board a Customs' revenue cruizer to call on a Mr. S. Bligh, formerly a naturalist in Norfolk, who was serving on board. He had a tolerable collection of neatly prepared skins made on the Canton river. He had fine specimens of both *Herodias alba* and *H. intermedia*; and drew my attention to the fact that the latter lacked the pink garters which the former carries on the top of its bare *tibiæ*. He had also a large Goose with flesh-coloured bill and white dertrum and yellowish flesh-coloured legs; tail broadly margined with white, and belly blotted with black; apparently a race of *Anser ferus*. He had besides several of *Totanus fuscus*, L., which he assured me was very common during winter on the Pearl River. The best thing I got from him was a solitary specimen of a new species of *Porzana*, which I have lately described in the 'Annals and Magazine of Natural History' (March 1870, p. 173) as *Porzana mandarina*. He showed me a *Calamoherpe orientalis* (T. & S.), which he said was just beginning to arrive. There were certainly plenty of Reed-warblers about then; for the river-banks resounded with their notes. Mr. Bligh believed that both *Anas circia*, L., and *Anas zonorhyncha*, mihi, breed in the neighbourhood of Canton.

The Commissioner of Customs at Canton had a nice aviary, with several birds of interest in it. Of domestic things, the most curious was a full-grown Duck (cross between a Muscovy and the common Chinese or Penguin Duck) of a piebald colour, with *four* legs. The foremost pair were normal; the hind pair hung obliquely

backwards soles upward, and shook up and down with every movement of the bird, having apparently no muscular power. Among the wild captives were a pair of my *Porphyrio caelestis* from the Canton neighbourhood, and a Pelican (*P. minor*, Rüpp.) with yellowish bill and legs, which had lived in the aviary for two years or more but still retained the greyish-brown markings to its feathers. It sat for the greater part of the day on a perch, with its head back and its bill on its breast. There was another bird, which interested me most of all; and that was an Ibis said to have been winged on the Canton river. I noticed at once that it was my undetermined friend of Talienwan (Ibis, 1861, p. 261). It was very like *Ibis religiosa*, having, like it, a purplish-black bill, bare head and neck, the latter not bare to such an extent; entire plumage white, lacking the black tips to the wings and the desiccated purple plumes that adorn the back of the other. Its pectoral feathers were long and pointed, like in *Herodias garzetta*. It was about the size of *I. religiosa*, and had similar legs. I could not handle the specimen, and cannot, therefore, give measurements. I before supposed the Chinese species to be the Indian representative of the Egyptian sacred fowl *I. melanocephala* (Linn.) (P. Z. S. 1863, p. 60); but Jerdon's description (B. of I. iii. p. 768) shows that to have black quills. There seems no doubt, therefore, that our species is a novelty; and I would propose to recognize it as *Ibis propinqua*. The live specimen in the aviary at Canton, as I have just noted, did not show the peculiar dark decomposed scapulars and tertials of the two allied species, nor did the birds which I saw in Talienwan.

On my way up from Hong Kong to Shanghai, off Video Island (near Shanghai), I saw (15th May) a Black Petrel the size of a Duck, and a small flock of Guillemots. A Swallow followed us for the greater part of the day; and a *Lanius lucionensis*, Strickl., flew on board. In the grounds of the Shanghai Consulate they have a very fine pair of *Grus montignesia*, Bp., that have the run of the place. They are very tame and bold, and have lived there many years. I saw them on my first visit to Shanghai in 1858. In the bird-shops of Shanghai there were plenty of White-eyes (*Zosterops erythropleurus*, mihi), Pihlings (*Alauda mongolica*, Pall.), and Hwameis (*Leucodioptrum sinense*, L.)—also numbers of *Suthora webbiana*, G. R. Gray, caged separately and kept for fighting. The domestic Cormorant was also offered for sale, and the bodies of some small shore birds, from strings of which I was glad to secure *Egialites geoffroyi* (Wagler) and *Eg. mongolus* (Pall.) in full summer plumage. A friend showed me a collection of fossils purchased at Shanghai. He had some fine Orthoceratites obtained from the curiosity-shops; the Chinese believe them to be natural photographs of pagodas. His collection of fossil teeth were procured at the drug-gists, where they are sold for medicine. Shanghai is a great centre for this trade; and the raw article can be procured here in quantity. In other large towns you can only get the prepared drug in a calcined state. These fossils are called *Lungche*, or "Dragon's teeth;" and the idea about them is that in olden time the world consisted of



monsters who were incessantly fighting and killing one another, until man came on the scene and initiated a more peaceful state of things by clearing the country and cultivating it. The monsters were large and powerful brutes; and in their teeth and bones existed their strength; hence the remains of these ground to powder and taken internally must give strength to the weak invalid. For the same purpose Tiger's bones are also in favour. Mr. Kingsmill had managed to get together a very nice series. He had also specimens, chiefly of fossil plants, of his own collecting.

At Chefoo, on the 21st of May, all the Gulls I saw about the harbour were *Larus melanurus*, Temm. et Schleg.

About Tientsin, on the 25th of May, Swifts were abundant.

On the 27th I arrived at Peking, and learned, to my great annoyance, that Père David had left the same morning for Tientsin on his way south. He was bound on a three years' exploring tour into Szechuen, bordering Thibet. I had counted on his assistance in working the northern birds, and his departure was a great blow to me. I nevertheless lost no time in visiting the Lazarist mission called Paitang, near the north-west gate of the Tartar city. The priests were very polite and courteous, and led us to the museum; but none of them knew any thing about the treasures it contained: the soul of the place was gone. We were escorted into a building on the left of the cathedral; and judge of my surprise when I found myself in a large room with glass cabinets all round and glass-faced tables up and down the middle, as neatly got up as in any museum in Europe. Three sides of the room were devoted to birds and mammals, the cabinets being divided by horizontal shelves, on which were placed specimens elegantly mounted on stands. The fourth, or side through which we entered, exhibited astronomical and other instruments, and an assortment of minerals. The tables contained Butterflies and Beetles pinned and arranged. The zoological specimens were for the most part from the neighbourhood of Peking, and had been collected by the Père Armand David. The zeal and enthusiasm of the Abbé for scientific pursuits must indeed be great to have enabled him to accomplish all we saw before us, in a remote place like Peking, in the space of four and a half years; and how commendable the liberality of a religious mission to give so much space, labour, and money for providing a kind of instruction to the youths of their school which in England and Europe generally is considered of a very secondary and even unnecessary character! I trust many of the Chinese pupils will be won over by the attractions of the museum to the study of the natural history of their country; but I fear it is a vain hope. The priests told us that the natives took very little interest in the prepared specimens. I paid during my stay in Peking three visits to the museum. The priests were surprised at my coming so often; but I could have spent weeks there to advantage. All the species that Père David had collected were not there. They told me that he had sent large collections to Paris, and that none remained but those here exhibited. How I longed for the worthy

Father himself to go over his treasures with me. I jotted down a few notes, which I will here insert.

A very fine series of Eagles and Hawks; and among the former a large *Gypaëtus barbatus* with pale underparts. A female *Cercus melanoleucus*, of a rich brown colour.

*Troglodytes europæus* (?). Apparently the same as the Japanese species, *T. fumigatus*, Temm.

*Pericrocotus brevirostris*, so marked.

A Redbreast with red head and neck, with black line across breast, grey sides, red tail; Robin green above, with white belly = *Lusciola akahige* of Japan.

*Lanius excubitor*, var., in different stages of plumage.

*Lanius phœnicurus*, with the head dull brownish, forehead grey = *L. lucionensis*; and one specimen of the species I have lately described from Szechuen as *L. waldeni* (P. Z. S. 1870, p. 131).

A Warbler from Mongolia, like *Sylvia curruca*, with black ear-coverts and whitish outer tail-feathers, marked *Sylvia cinerea*.

*Locustella certhiola* (Pall.), from the neighbourhood of Peking; and a Warbler from the same locality like *Nisoria undata*, Bp., but much less banded on the underparts.

*Passer ouratensis*, with black round the bill and down the throat, from the Oulashan; also *Passer petronius*, L.

*Mecistura ouratensis*. Two young examples from Oulashan.

*Parus ouratensis*. An ugly dusky-backed species with a black crown, also from Oulashan (= *P. sibiricus*).

One specimen of my new *Ægialites hartingi* (P. Z. S. 1870, p. 136).

Another large Sand-plover, with white head and neck, red breast succeeded by a black band, white belly; above brown. This I take to be the full summer plumage of *Charadrius veredus*, Gould.

The most interesting thing in the collection, of which M. David had procured but the single example mounted in the Peking Museum, was a peculiar Swan, bought in the flesh in the market at Tientsin. M. David did not acquire a duplicate; and it has therefore not been forwarded to Paris. The priests at Paitang gave me permission to describe it; and as it is such a remarkable species I regard it as a duty to make its existence known to the Society. It is smaller than *Cygnus bewickii*, Yarr., with the neck about a third shorter, is entirely white, with the bill vermilion colour having a black dertrum, and the legs and feet orange-yellow. Specimens of *C. musicus* and *C. bewickii* were ranged alongside. Its nearest ally, of course, is *C. coscoroba* of Chili; but it is larger than that, and has the wing white throughout. It would appear to be the northern representative of that curious form of Swan; and I would propose to name it, in honour of its discoverer, as the *Cygnus (Coscoroba) davidi*, n. sp.

The mounted Mammals were:—An adult and a younger sample of a Leopard from the western hills—doubtless the *Leopardus chinensis*, Gray, founded on skulls brought from Peking by Dr. Lockhart (P. Z. S. 1867, p. 264), which, from skins of old and young brought



home by myself, I showed to be the same as the *L. japonensis*, Gray, P. Z. S. 1862, p. 262 (*vide* P. Z. S. 1870, p. 4).

*Cervus capreolus*, L., var. *pygargus*, Pall. A specimen without horns, white rump and tail; from Pechili (the province in which Peking is situated). The French legation had a number of these alive, and they bred in confinement. The British legation had a couple of bucks. They are small Deer, of a deep yellowish-brown colour finely speckled with black, the rump marked as before said. Their horns are covered on the beam with short spinous processes.

A long-tailed *Capricornis* from the western hills.

*Antelope gutturosa*, Pall., from Mongolia.

*Lepus tolai*, Pall., from near Peking.

Gerboas from Seu-en-hwafoo (marked *Dipus jaculus*, Pall.).

An olive-brown Squirrel (marked *Myoxus cinereus*).

A Badger very white about the neck.

A small *Arvicola*,  $3\frac{1}{2}$  inches long, 1 inch tail; back red, with black dorsal line; sides and underparts white.

*Mustela sibirica*, *M. foinea*, and light-brown Mole-rat.

*Mus decumanus*, *M. minutus*, and a Hedgehog.

A *Spermolegus* marked as a *Cricetus*.

A small short-tailed Fox.

A kind of Wild Cat closely allied to *Felis catus* of Europe.

And a fine pair of horns of *Elaphurus davidianus*.

These were all the Mammals exhibited. M. David must have consigned most of his collections in this branch to the Paris Museum.

The dust and heat were insufferable; and the great city is of such a huge extent that there was no getting out of it for a run into the fields without making a day of it. I was tired of watching the Rooks and Sparrows disporting themselves among the trees of the legation, and the myriad Swifts that were constantly skimming the air above, and of listening to the melancholy moaning of the Pigeons that flew in flocks round and round. (The Chinese attach little hollow gourds, or light reed-pipes slit at their tops, to the base of the Pigeon's tail. These face the wind and produce æolian music as the bird flies. In every flock two or three Pigeons carry these whistles.) Closed in by its lofty walls, one feels buried in Peking. It requires a gale to make a free circulation of air; and then the dust overwhelms you and penetrates every part of your person and every nook of your house. To lay the dust many of the main thoroughfares are watered with human urine for lack of water. One longed for wings to rise above the close and unwholesome atmosphere, and envied the Swifts.

On the 2nd of July I was enabled to find relief in the western hills, where large temples abound, situated at all heights, in picturesque places, and where among the trees and grassy slopes the cool breeze searches you out and makes you feel a different being. The Europeans in Peking find life insupportable in the city during the great heat of the summer; and most of them spend the greater part of that season among these hills—parties of them uniting and fitting up the native temples. Some go to the nearest hills (twelve miles



west of the city), others further westward. The diplomatic corps of the various nations, and even the missionaries, all retreat, the junior members of the legations taking it in turns to reside in town to report on occurrences and to keep up communications. Thus by the end of June the members of the British legation had migrated to their summer habitat; and I was glad to avail myself of an invitation to follow. The temple I visited on this occasion was the Black-Dragon Temple, over the first range of hills to the left of the gardens of the Summer Palace, and about twenty miles from the legation in Peking. The Black Dragon is the deity the Chinese appeal to on occasions of great drought; and such an occasion had occurred before my arrival in Peking. The mandarins were in great trouble because the heavens proved obstinate. They prohibited the slaughter of animals for food and tried every form of prayer, but in vain. At last one of the wise men suggested that the ancient manner of appeasing the wrath of the Black Dragon was to offer him a Tiger's skull. Peking was searched for the article; but the medicine shops had it only in the form of powdered drug. The Inspector-General of Customs asked if a Tiger's skin would do as well, as he had one which he would sacrifice for the purpose. Nothing but a skull was acceptable. At last one was secured, and with great ceremony carried to the temple and sunk in the pretty pool overshadowed by trees within its walls. In the evening clouds began to gather, and the next day there were copious and refreshing showers. I was in hopes of finding this skull, as I was very anxious to get a skull of the northern Tiger in order to determine whether it be the same species as that of Bengal; but some one had been before me, the skull was gone.

On our way outside the Tihshing Mên, or "Gate of Victory" (the gate the British troops occupied in 1860), we came upon a large patch of reeds and rushes with its noisy inhabitants. They consisted of two species of reed-birds—the *Calamoherpe aëdon* (Pall.), and a smaller bird something like our Reed-wren. The latter was very abundant, chattering in all directions; but it was not easy among the reeds to procure specimens. I shot a female; and, judging from her bare belly and worn appearance, she must just have left the nest. The male hopped down a rush to look at her; and several others appeared, to learn the cause of the disturbance. Before I had reloaded they had all retired again. I had not more time to devote to them. The specimen procured is a Reed-wren allied to *Calamoherpe arundinacea*, Gmel., and *C. dumetorum*, Blyth, in colour, but may at once be distinguished from the former by the band of dingy cream-colour that crosses the loreal space extending from the nostril to the eye,—and from the latter by its white throat and breast; it has a thicker bill, shorter wing with longer first primary and different proportions of the other primaries, more graduated tail, and paler legs. I will introduce it as the

*CALAMOHERPE CONCINENS*, sp. nov.

Upper parts olive-brown; lore cream-white; cheeks and sides of

neck light ochreous brown; wings and tail light brown, edged with reddish olive-brown; underparts, axillaries, and carpal edge cream-white; under edges of quills light salmon-colour; tibials and vent yellowish brown; bill brown on upper mandible, ochreous on lower; legs ochreous flesh-colour, browner on the toes, with brown claws.

Length 5·2 inches. Wing 4·1, first primary measuring ·55 in length and being ·8 shorter than the second, which is ·2 shorter than the third, which is ·05 shorter than the fourth, which is slightly longer than the fifth and the longest in the wing. Tail 2·3 inches, much graduated, the outer rectrix being ·5 shorter than the middle; subcaudal coverts fall ·85 short of end of tail. Bill in front ·45, to rectus ·67. Tarse ·84. Outer toe rather longer than the inner; middle toe ·5, its claw ·21; hind toe ·33, its claw ·25.

On the 2nd of July we walked across the valley to the range of hills about six miles distant, to a magnificent temple called *Tacheo-sze*, where the Prussian legation had temporary quarters. The Lark of these intermontane valleys is a crested species—the *Galerida leautungensis* (mihi). They rose on all sides about us, making the country resound with their short sweet notes. They seldom rose more than forty or fifty yards from the ground. Their more frequent custom is to sing on the ground; and then their notes have quite a ventriloquistic effect. This was their breeding-season, and they were very merry. I saw them dusting themselves in the road as Skylarks are wont to do. The other conspicuous bird of these valleys is the Black Drongo, *Dicrurus macrocerus* (Vieill.). The willow is the chief tree; and among the groves of them the Black Drongo shares habitancy with the Sparrow, *Passer montanus* (L.). A pair of the former had a nest on the slender top twigs of a willow; one bird was sitting, and I watched its mate relieve it and take turn. Large numbers of natives passed, carrying baskets of apricots and peaches; the former were nearly out of season, the latter just coming in. Damsons were also appearing. Siskins, (*Chrysomitris spinus*), were breeding among the apricot-orchards around *Tacheo-sze*; and Goldenwings, *Chlorospiza sinica* (L.), old and young, were flitting about in small parties. On a mound by the side of a trickling stream in the woody hill-side I noticed a Wood-Wagtail, *Nemoricola indica* (Gmel.), pulling at a worm. It would not be disturbed by my approach. I had several opportunities of watching this bird, as it spends its summer among these western hills. It raises and depresses its tail slowly. It sings from the bough of a tree, moving the hinder part of its body from side to side; its song consists of a long wailing whistle-note, which it sometimes doubles. In flying it rises up and down, but utters no note with every jerk as do the true Wagtails. It is extremely tame. I did not find its nest.

On the 6th of July we visited a large cave about a mile from our temple. It is on the side of a low hill which stands alone. Its mouth is about 20 feet in diameter, opening into an abyss floored with broken rocks, among which water has collected. Its internal dimensions are large; but it offers no means of entrance. Along the



walls of its interior the rock was broken into shelves ; and here the Rock-pigeon (*Columba rupestris*, Bp.) resorted in hosts to rear its young, and find a cool retreat from the noonday sun. A shout and a few stones thrown in brought them out in swarms. The Sparrow, of course, also availed itself of so satisfactory a site. A pair of Kestrels had a nest on the cliff overlooking the hole ; and several species of Hawks were about. In this neighbourhood I also observed Choughs, *Fregilus graculus* (L.). Their peculiar, loud, discordant notes were quite enough to inform you of their approach.

On the 7th we got donkeys and crossed the hills, making south-eastwards to the temple Ling-shan-sze, where the British minister resided. This is a very fine temple, situated on a lower slope of the range that faces Peking, and commands a fine view of the plain with the great city in the distance, and the lower wall to the south of it enclosing the Nan-Haitsze, or "Southern-Marsh" hunting-grounds of the Emperors, celebrated among zoologists as the only known habitat of the *Elaphurus davidianus*. To the north can be traced the various parks and gardens of the Emperor's summer abode, in which are confined the *Cervus xanthopygus*, M.-Edwards, the *C. mantchuricus*, mihi, and the *Capreolus pygargus* (Pall.). To the latter Europeans can get admission ; but the "Southern Marsh" is closed against them : it is of large extent, and has east and west gates, at both of which troops are quartered. Foreigners have taken these guardians by surprise, and ridden in before they could close the gates. But beyond the barracks of the household cavalry there is nothing to be seen but low woods and marshy places—in fact, a neglected expanse abandoned to the *Elaphurus*, some few *Cervus mantchuricus*, and *Antilope gutturosa*, Pall. Being informed of the interest the Society took in this animal by its indefatigable secretary, Sir Rutherford Alcock moved one of the high ministers to procure him some of the fawns alive. Four were obtained, but they were so shaken by the cart that conveyed them to the legation that one died. The mandarin sent a fifth. The minister desired me to look after them, and I had left them in the legation doing well ; but the day after my arrival at Ling-shan-sze word came that another had died ; and on the 9th I was on my way back in a cart to the city, which I reached after a five hours painful jolting. The young *Elaphuri* were being fed on milk and bran accompanied with fresh-cut grass ; two of the three survivors were suffering from diarrhœa, and a third died. I was in despair, as the remaining two looked sickly. At last I observed how fond the two living *Capreoli* in the legation were of sprigs of the elm that abounded in the grounds, and I tried my young charges with that. They enjoyed it and began to brighten, and I had no more trouble with them. The elm-branches were given to them as daily dessert ; it was the over-feeding on damp grass that was killing them. The young *Elaphuri* came into our hands when they were about six weeks old. They had a very calf-like look, and were very unsteady on their legs. Their tails were not, as in the adult, merely tasselled at the end like a Donkey's, but were covered with hair uniformly bushy throughout. Their coats were

of a deep yellowish brown or fawn-colour, spotted all over with large spots of white. As they grew older the spots began to disappear, and the hair to grow longer and browner. When I left Peking in October scarcely a trace of spots was left, and the animals were steadier on their legs, but still gawky and awkward. I congratulate the Society on having got buck and doe both safe and alive in the Gardens.

Fairs are held twice a week at different temples in the city, and are attended by large numbers of well-dressed people. The booths are neatly got up; and there is always a good display of toys, nick-nacks, and flowers; but I did not see much to attract in the bird line. A few of the Chinese pet-birds were offered for sale, and these either young or in bad plumage. Some are shown in cages, others attached by a slipstring to a stick with a metal point at its end for planting in the ground or in a flower-pot. One of their curiosities was an albino *Lanius bucephalus*.

On the 25th of July I observed that all the Swifts that were breeding in the roofs of the various buildings in the legation had cleared out their young and deserted their nest-holes. In passing the western gates of the Chinese city, of the thousands that swarmed like bees round their turrets a few weeks ago not one was to be seen on the 28th of July. In the morning and evening many still sported about at this date in the air over the legation grounds. The young leave their nests without any loitering or trying of wings; but for some time their parents feed them on the wing. The old birds are fond of screeching as they fly, especially in cloudy weather. Heavy rain closed July; and on the return of fine weather (8th of August) not a Swift was to be seen; the myriads that swarmed in the air of Peking during the fearful dry heat of July had all disappeared. This accounts for my not having met with them on my former visit to Peking in the autumn of 1860; they had left before we arrived. No House-martin (*Chelidon*) frequents the city; and I only once saw a couple passing over when out on a trip in the country. *Hirundo gutturalis*, Scop., and *H. daurica*, Pall., are the only Swallows that court the protection of the Pekinese householders, while *Cotyle riparia* (L.) enlivens their river-banks. The Swift is closely allied to our home friend *Cypselus apus*, L., but differs sufficiently to be distinguished as an Eastern race:—

*CYPSELUS PEKINENSIS*, sp. nov.

Back, nape, and underparts as in *C. apus*, the white on the throat more extended. Crown, rump, tail, and wings light brown with a slight coppery-pink gloss. Primary coverts, shafts of quills, and outer webs of wing-primaries blackish. Forehead very pale, with a whitish upper edge to the black patch in front of the eye.

♂. Length 7 inches; wing 7; tail 3, depth of fork 1; wing reaching beyond tail 1.2. Legs deep purplish brown, with black claws. Inside of mouth flesh-colour, with a purplish tinge, especially in lower jaw. Skin round eye and bill blackish brown tinged with purple. Iris bright brownish black. Judging by the bareness of the breast and belly, both male and female sit on the nest.



On the 9th of August I went out again to the neighbourhood of the Black-Dragon temple, and the following day started with some friends for the *Meaofungshan*, a temple built like a fortress on a hill 1500 feet high. The road lay across the valley and over the range (1300 feet) on which the Tacheo-sze temple stands, along a plateau and through an orchard-planted ravine. On the grassy parts of the hills *Emberiza coides*, Brandt, occurred frequently, singing sweetly a Robin-like song; but about the orchards and plantations of oak there were few birds. The ear was everywhere deafened by the noisy Cicadas. In the ravine about the foot of the *Meaofung* hill the chief species was a brown *Cicada* about  $1\frac{1}{2}$  inch long, known to Europeans in Peking as "Keenlung's Nightingale." Its cry may be syllabled "Meao-meao-meao-may —." It is said by the Chinese to have been introduced from Jehol into this neighbourhood by the Emperor Keenlung, who took great pleasure in its note. The noise it makes is perfectly bewildering, and one cannot but feel pity for the Emperor's unaccountable taste. From the small village at the foot of the hill it was a painfully fatiguing climb up the winding stone steps to the temple. This temple is considered especially sacred in the eyes of the Pekinese, and twice each year is visited by pilgrims, who make the journey, a distance of thirty-five miles from Peking, on foot, prostrating themselves at each step. There were several kinds of birds about the woods on this hill. Kestrels and *Erythropus amurensis*, Midd., were about in numbers; and in the pine-trees about the temple I watched with pleasure the movements of the little *Sitta villosa*, Verreaux, and the Crossbill. The early morning of the following day was cold, and a high wind was blowing. Choughs and Kestrels were rising and falling in the air at one another against the wind. In the wood below, the *Erythropus* was feeding its fledged young on the branch of a tree. On the rocks below the temple two Squirrels were active, chasing one another and fighting. I secured one; it was brown, with a long brown bushy tail and whitish underparts; its ears were rounded, and not plumed; and its face was more sharp and Rat-like than in ordinary Tree-squirrels. It resembles in colour the *Sciurus chinensis*, J. E. Gray, from Ningpo; but the latter is a smaller animal, with rounder head, and more arboreal in habits. The Peking Museum had several specimens of the northern species; and M. A. Milne-Edwards has lately figured it, in his 'Recherches des Mammifères' (in course of publication), as the *Sciurus davidianus*. We returned by a long circuitous route, which took us eastward through a long gully to a *cul-de-sac* among the hills, to get out of which we had to ascend the *Shipa-parh*, or "eighteen flights" of stone steps. The descent took us to the banks of the *Wénho* (river). Our course thence lay north-westwards through the valley to the Black-Dragon temple. It was a long, fatiguing walk of twenty-eight miles. On our way among the bushes on the hills we heard the *Garrulax*-like note of *Pterorhinus davidi*, mihi, and saw small parties of *Rhopophilus pekinensis* (mihi) flitting along the tops of bushes singing sweetly.

On the 13th of August we paid another visit to Tacheo-sze (the

Prussian temple), but beyond Crossbills and Goldenwings we saw nothing of interest. The Crossbills were usually on the tops of the pine-trees feeding on the cone-seeds, and twittering in notes much like those of a Sparrow.

*LOXIA ALBIVENTRIS*, sp. nov.

Small; like in colour to *L. curvirostra*, L., but differing from all the known species in having the abdomen and under tail-coverts white, the latter with large central arrow-head brown spots. Under quills whitish.

Length 6 inches; wing  $3\frac{5}{8}$ ; tail 2; tip of wing to end of tail .6. Iris brown; bill brown, light horn-colour along the tomia. Legs, toes, and claws blackish brown, washed with pink on the soles. Called here *Keao-tsuy* (twisted bill).

On the 14th of August, with two donkeys to carry our baggage, we walked northwards across the millet-plain twenty miles to Chang-pingchow, and put up at an inn near the west gate. This town contains a Taotai, who has charge of the tombs of the Ming Emperors, situated in a neighbouring valley, and called the *Shih-sán-ling* (or thirteen eminences). In the early morning we got donkeys, and rode to the celebrated tombs. Two miles of road brings you to the commencement of the sacred precincts, marked by a high open gateway of three arches, whence leads a paved way for a mile to a brick gateway, also of three arches; a mile further and you reach a single bronzed arch with a large tablet inside, raised by the Emperor Keen-lung of the present dynasty, who repaired the tombs; then a series of animals in stone flank the way on either side, one kneeling and one standing, of the following in order—the fabulous *Kelin*, Lion, Camel, Elephant, *Tsowshow* (Lion with scales and hoofs), and Horse, succeeded by two warriors and two statesmen. Three triple arches are next passed, and you have a cultivated plain before you bounded by hills, at the feet of which you can count, as you gaze round, thirteen enclosures of various extent, with what looks like a painted temple with yellow tiling in each, surrounded by trees. A stream crosses the plain; and the ruins of a marble bridge show the course of the road from the arches. The tomb of the Emperor *Yunglo* was the largest and best wooded; so we bent our steps along the broken stone causeway to that. The porter in charge was called and let us in. We were led into the hall where the shrine was placed,—an enormous room 70 paces long by 33 broad, and about 60 feet high in the centre, the sides a little lower; the ceiling was chequered and painted, a good deal like that of the Elgin Gallery in the British Museum, and supported by huge pillars of single timber, each 12 feet in circumference, throughout its great length. There were eight of these pillars. In rear of this large hall is the great mound in which Majesty's bones are entombed. After all this the Society will expect to hear something of the ornithology of the place; but birds were scarce. Tits (*Parus minor*, Temm. et Schleg.) and *P. kamtschaticus* were commonest; but I looked in vain for the Crested Cole-tit (*P.*



*pekinensis*, David). *Sitta villosa*, Verr., occurred (itself almost a Tit in habits) running along the slender twigs of the trees and hanging about the leaves, fighting and pursuing one another, and at times giving utterance to a lively chatter a good deal like that of *Lanius lucionensis*, Strickl. I was enabled to get several specimens. The males differ from the females in having a black cap. It has a very close ally in *Sitta canadensis*, L., of North America. A pair of *Ruticilla aurea* (Pall.) had hatched a brood of young in the grounds, and were feeding their spotted fledglings on the stone parapet. The sun was setting, and we were leaving the place annoyed at our bad luck, when an Owl popped out of its roost in the bosom of a tree. I winged it; and after a hunt we secured a fine specimen of a Wood-owl, which seems to be the Himalayan race *Syrnium niviculum*, Hodgs.—♀. Length 16·5 inches; tail 7·25; wing 11·75; wing-tip to end of tail 1·75. Irides black. Skin round eye yellowish flesh-colour. Bill wax-yellow with tinge of green. Soles of feet yellow; exposed part of toes greenish yellow, as also are the bases of the claws, rest of claws blackish brown.

The distance from Changpingchow to the tombs is about nine miles.

On the 19th I crossed the hills and paid another visit to H.M. Minister at Lingshansze temple. Several temples stand on higher positions up the hill-side, and many of them were occupied—one by the American legation, another by the Chaplain to the British legation, and others by the secretaries and students also of our legation. These were all attainable by stone steps winding through the ravines and over the hill-sides. The ravines were well planted with trees, of which the chestnut-leaved oak was most in abundance; its acorns support the Pigs, and the acorn-cups yield a black dye. The *Kæhreuteria flata*, Bunge, with its popping pods, was also plentiful, and the *Sophora japonica* or locust-tree. This last is the commonest tree in the city of Peking, and is sadly infested with a green Measure-worm, which develops into a brownish-mottled moth. The tree bursts into leaf in spring, and in a few weeks stands denuded, every leaf having been eaten by this caterpillar. It shoots again into leaf, and is again stripped. Three efforts are made by the tree in the year, and three times it is robbed of its leaf; and yet the tree is abundant and does not perish. In Boston, U.S., a similar worm is said to make great havoc among the locust-trees of that city; and to put a stop to it the citizens imported the Sparrow (*Passer domesticus*, L.); but *Passer montanus*, L., abounds in Peking; yet the Measure-worm multiplies in spite of it. A scented *Artemisia* spreads everywhere on these hills, scattering a dust-like yellow pollen. A sprig of this is placed in the headgear between the ears of Mules and Donkeys to keep off the blood-sucking flies that swarm on the backs of the ears of the poor beasts. The plant is twisted by the country people into ropes, which are burned to ward off mosquitoes. In this neighbourhood the commonest *Cicada* that deafens you is the green one of the south, about an inch and a quarter long. It keeps on crying "Kwai-kwai," &c., for some time, and then finishes with a prolonged "sze." A second is a large dark-brown species called

"Knife-grinder," also of the south, which sustains one note throughout, sounding like the grinding of a knife on a wheel. A third is smaller, also dark-coloured, with yellow lines on its face, and utters a single bell-like sound, heard often at night as well as in the day. All these three visit the city.

It may be that the presence of so many Europeans with guns had driven the birds away; but in the hill-side woods insects seemed to hold complete sway. In the early morning there were some signs of feathered life, and a few songs were to be heard; in the noonday no life stirred, you felt choked with heat and deafened with *Cicadas*; but the evening came on fast, the Hawk and Crow tribes were active, Chukar Partridges might be heard chuckling in the grassy hills above; and as darkness stole on the Goatsucker would start into life, with its continued "chuck-chuck" note, and commence pirouetting over the trees. I shot one of them on the 31st of August: it was moulting its quills; but I found it to be *Caprimulgus jotaka*, T. et S., as I had suspected. Its remarkable note, uttered at nightfall and the night through, attracts the notice of every visitor to the hills, and they generally attribute it to an Owl. The Chinese give no help in explaining what the bird is, as they call it the *Teay-shoo-pe*, or "Bark of the Iron-tree," from its bark-like appearance, I presume, when it lies along a branch at roost during the day. By the end of the first week of September the Goatsuckers had all disappeared.

On the 1st of September we went out to look after Partridges. We kept along the plains, and did not see a bird. A Quail or two was all we saw in the game line. The trees were full of *Phyllopneuste sylvicultrix*, mihi, and *P. plumbeitarsus*, mihi; and some *Reguloides superciliosus* (Gmel.) were about. A species of Scorpion was common under stones, attaining a length of 2 inches. It frequently finds its way into houses; and its sting is poisonous. I was told on good authority that if surrounded by a fire this Scorpion turns its tail up and stings itself in the head, causing death. I was not inquiring enough to try the experiment.

I will here insert the few notes I made on specimens procured in the hills.

*Tchitrea incei*, Gould, ♂. Length 9·25; wing 3·6; tail 5·4, central feathers '6 longer than the others; wing-tip from end of tail 1·1. Bill, legs, and eyelid fine cobalt blue. Inside of mouth greenish yellow. Testis very large. Skull large, with difficulty drawn through the neck. This bird was shot at the end of May, and, from the state of its nasal organs, was prepared to breed; and yet the long feathers of its tail were not developed as in autumn. On the 7th of September I got a full-plumaged bird of the year. It had the brown bill and feet and light plumage analogous to *Tchitrea principalis* in the same stage. The cry of the adult bird is loud and chattering, similar to many of the notes of *Cyanopica cyana* (Pall.).

*Caccabis chukar*, Gray, ♂. Length 12·25 inches; wing 5·75; tail 3·3, of 12 graduated feathers rounding into a semicircle when ex-



panded; tip of wing to end of tail 3.1. Bill and skin round eye pink or coral-red; iris red sienna; legs lighter pink red, with pale soles and brown claws. This bird was shot on the 5th September. A party of them were feeding in a millet-field at the foot of the hills. They, on alarm, at once took to the hills, dispersing among the rocks, and calling to one another. Their note is a chuckle, "kok-kok-kok," the syllable constantly repeated. When pursued they at once run up the hills; and if the hunter wants sport, he must get above his birds, when they can be made to take wing. It is a great scramble to catch a wounded bird. The Pekinese call them *shih-ke-tsze*, or "Rock-fowl."

*Picus poliopsis*, Swinh., ♀. Iris bright chestnut-red. Bill blackish brown, asparagus-green at base, with which colour the whole of the bill is washed. Legs greenish brown, ashy yellow on soles; claws brown, with pale bases. This species appears to be rare about Peking. I only saw one other specimen of it during my stay. It is a second species of the subgenus *Hyopicus*, of which *P. hyperythrus* is the type. It differs from its Indian ally in having its underparts yellowish brown instead of chestnut, the cheeks and sides of neck being snuff-coloured. The crimson of its rump mounts to the belly. It is rather larger in size, and is more banded with white on the back and scapulars. The white spots on the head of the female are much larger. I considered it a variety before; I think now, on seeing a third example, that it is well entitled to specific rank.

*Hemichelidon sibirica* (Gmel.), bird of the year. Breast and flanks confusedly streaked and spotted with deep greyish-brown. Upperparts spotted with pale ochreous, lesser wing-coverts tipped with the same. Two adult specimens from Siberia of this species, kindly sent me by Dr. v. Schrenck of St. Petersburg, are paler than Chinese examples, but otherwise similar.

I will take the opportunity of here introducing two species from North China in my collection, which appear to be new.

#### ARUNDINAX FLEMINGI, sp. n.

The small species of reed-bird that Mr. Fleming, R.A., brought from Tientsin in 1861 seemed to answer to the description of *Salicaria cantillans* of the 'Fauna Japonica;' and I included it in my China list under that name. I have now the Japanese species before me, and find the two birds quite distinct. The wing of our bird shows a different proportion of quills; the tarsi and hind toe are much shorter, and the hind claw and toes much weaker. It is smaller in every way, and differs in its coloration.

Upper parts light brownish olive, eyebrow and cheeks pale ochreous, lore creamy white, with an obscure brown streak between it and the eyebrow; throat and middle of belly white. Underparts primrose-yellow, tinged with buff, strongly on the vent. Quills and tail light hair-brown, margined with light brownish olive. Bill brown on the upper mandible, except its tomia, which, with the lower mandible, are ochreous yellow. Irides blackish brown. Legs and toes ochreous flesh-colour.

Length about 4·5 inches; beak in front ·35, from rictus ·52, depth at base ·13, breadth at base ·15; tarse ·83; middle toe ·55, its claw ·18; hind toe ·35, its claw ·22; wing 2·35, fourth and fifth quills equal, sixth a trifle shorter, first 1·1 shorter, second ·35, third ·6; tail 2·1, of twelve feathers, the penultimate ·5 shorter than the eight centrals, which are equal, outer rectrix in the specimen not full-grown.

I have also an *Emberiza* that Mr. Fleming brought from Tientsin, which I registered before as *E. stracheyi*, Moore, but wrongly. I have since procured a specimen from the country near Amoy, shot in December 1867, which has rather a larger bill; and I have a bird from Père David, taken at Peking on the 12th May 1867, with a shorter and rather smaller bill. They are all three males. The Tientsin and Peking birds are in summer plumage, and have the whole head and throat black, with a broad line of white down the centre of the crown, a broad white eyebrow, and a broad white moustache; on the under neck, below the black throat, a large white spot occurs; and again below this comes the rufous pectoral band. The Amoy bird was shot in winter, but still shows much black on the throat. I suggest for the species the name

*EMBERIZA TRISTRAMI*, sp. nov.

Crown black, dividing at the occiput, and running in a broad line down each side of nape; at the division on the occiput a large white spot occurs; and a little olive tips the central crown-feathers, suggesting a central streak, in immature plumage. Eyebrow and long moustache-streak white, with a splash of yellowish olive, which marks also the lores. Lores, under the eye, and ear-coverts brownish olive, a black line running from the hind corner of the eye round the ear-coverts. Throat yellowish brown, more or less marked with black. Upper parts light yellowish brown, with an olive tinge; the black nape-lines change into deep rust-colour and continue to the centre of the back; scapulars and lower back with broad centres to feathers black, flanked with rust-colour. Rump and upper tail-coverts bright rust-colour; the two central rectrices brownish ferruginous; the fifth and fourth brown, rust-coloured on the outer web with light yellowish-brown edging; the third of somewhat lighter brown, with a small white spot on the inner web near the tip, which is also white; the second, with half the inner web white, running from half an inch from the base along the shaft to the tip; first or outermost feather white, except a brown mark along the outer web encroaching on the inner towards the tip; all the unmentioned parts of the last rectrices are brown. Wing-coverts blackish brown, the lesser broadly margined with light olive-brown, light ochreous at their tips; the greater edged broadly with brownish ochre, those covering the tertiaries being rust-colour, with black median mark; winglet deep brown, with rusty edges; primaries hair-brown, the first quill edged with white, the next few with pale yellowish brown, gradually assuming a rust-colour towards the innermost



quills; tertiaries blackish brown, broadly margined with rust-colour, which increases inwards until it predominates over the brown.

*Underparts*.—A white spot succeeds the dark throat. Breast and flanks rusty buff, with darker median streaks of the same on the former, and blackish streaks on the latter. Belly, vent, and axillaries pure white.

Bill somewhat finch-like, brown on upper mandible and on apical third of lower; basal portion of latter flesh-colour.

Legs, feet, and claws yellowish flesh-colour; the last curved and sharp.

Length about 5·5; wing 2·9, the four first quills nearly equal in length; tail 2·85, composed of twelve rectrices narrowing towards their tips; bill in front ·4, depth at base ·23; tarse ·7, hind toe ·3, its claw ·27.

The description is taken from the male procured near Amoy.

We left Peking on the 17th September by the Tihshing gate, and, passing the towns of Tsingho and Shaho, put up for the night at Changping Chow, twenty-five miles from town. Before reaching our resting-place, we strolled under some willows, saw two Orioles (*Oriolus chinensis*), and secured a female *Turdus pallidus*, Gmel.

On Sept. 18th sent our carts on to Shihshanling (Ming tombs), and walked along the hills at the back of Changping Chow, that overlook the valley of sepulchres. Saw a flock of Chukar Partridges jumping up the rocks, and put up two Bush-quails, *Turnix maculosa*, Temm., in the valley among the beans. Wheat was being sown, sorghum and other millet being gathered; buck-wheat was in the ear; and the small beans planted between the rows of sorghum were ripening. Large numbers of Kestrels were flying and hovering about. Their movements struck me as peculiar; and on shooting a male we found the species to be a race of *Falco cenchris*, Naumann. We procured on this occasion an adult male, and in the Western Hills a young male. They agree in size and form with *F. cenchris* of Europe; but the adult male has all the wing-coverts grey right up to the scapulars, most of them narrowly edged with rufous. The adult has the inner or short primaries broadly bordered at their tips with whitish, rufous in the immature, and wanting in the European bird. Both adult and immature have the white on the under quills  $3\frac{1}{4}$  inches short of their tips; in the European bird it advances one inch nearer the tips. I will note this Eastern race as var. *pekinensis*. It will probably be the bird that winters in India.

Among the trees of Yunglo's tomb I was attracted by a loud shaking cry I had never heard before; and while wondering what it could be, I saw a bird like an attenuated Jackdaw fly across and fix on the trunk of a tree. *Picus martius*, of course! My heart throbbed violently; but it was no easy matter to bring him down, the shot had such little effect on him. One of my comrades helped me in the pursuit; and we at last secured the noble fellow: iris reddish white. I loitered about till dusk; and when nearly dark, something flapped violently across the avenue. Crossing under

the trees, I could just distinguish the outline of a large smooth-headed owl on a bare branch against the sky. I bowled him over, and found him to be a *Syrnium nivicolum*, Hodg., again—the species I had got here on my former visit. The other birds procured were a Green Woodpecker (*Picus canus*), a Pied Woodpecker (*Picus mandarinus*), a Titlark (*Anthus agilis*), which was common about the trees, and a couple of Nuthatches (*Sitta villosa*, Verr.).

The night of the 19th we passed in a one-roomed cottage, dignified by the name of inn, near Yunglo's tomb. It was like the stall of the old cobbler, "which served him for kitchen, for parlour, for all." I will say nothing of the horrors of the night, or of our personal appearance in the morning. What I lamented was the blackened state of my specimens from the constant fumigation they were subjected to. On rising we were saluted by the notes of a *Picus scintilliceps*, mihi, from a neighbouring tree. We had heard talk of a forest existing over the mountains, and we got a guide to lead us to it. Unfortunately the term for forest in Chinese means any thing from a clump of trees to a large expanse of wood; so that after clambering about the rocks and wading to our necks in damp grass for some hours, our guide brought us to a standstill at a group of firs, and told us that was the largest forest on these hills. We retraced our steps in disgust, but not till we had renewed our acquaintance with *Rhopophilus pekinensis* (mihi). It was whisking about its long tail on the tops of bushes, uttering a loud whistle. Its eyelid was madder-red, its iris washed with yellow; upper mandible light brown, lower yellowish white; legs brownish flesh-colour tinged with yellow.

From the Ming tombs to the town of Nankow, at the gate of the mountain-pass which leads through the inner portion of the Great Wall, there was a good road for the first six miles; the remaining six were fearfully stony and rocky, and the jolting of the cart endangered one's bones. A gentleman from California put up at our inn, and we spent an instructive evening together.

From Nankow, the gate that opens into the pass, to Shato, beyond the gate at the top of the pass, is fifteen miles; but the road is blocked with stones and lumps of rock, and our carts had to be unpacked and helped through with extra animals and men, while our goods were transported on donkeys. My two companions and I walked and rode on horseback. A male Sparrow-hawk (*Accipiter nisus*), with clear yellow irides and long yellow toes, was all we bagged; but we were delighted by witnessing the stoop of an Eagle. He was flying slowly across at a height over the deep gully through which we were travelling, when suddenly, like a stone, down he came and, shooting obliquely, struck a bank within fifty yards of us behind a cottage. He seized a Leveret; but the little creature slipped away from him, and escaped to the ditch below. We were so struck by the sight that we did not think of seizing our guns till the bird was out of reach. The wild rocky hills of the gorge draw closer as we approach the upper wall, that crosses the pass. Another flock



of Partridges attracted my comrades; and I sat down to gaze upon the treeless scene. Something moved to the right, and in an instant a little Squirrel stood on a rock before me, stroking its whiskers with its paws, and glancing at me. In another second, and it was scampering to another rock. I saw several of them, and found it common enough on our return through this pass. It is a ground-species, and seems identical with *Tamias striatus* (Pall.), which occurs also in Amoorland. The Great Wall at the upper gate of the pass is about 25 feet high by 16 broad, with turrets along it at a distance of every 120 yards; it stretches away along the ridges of the hills, to the right and left, out of sight. The wall of the enclosure at the gate was in ruins and deserted, and the pavement under the gate broken up. Two miles more of broken road brought us to the almost deserted walled town of Shato, consisting chiefly of bad inns. We went through it, and put up at an inn of a better class in the suburbs beyond. The country about was desolate-looking, composed of sand and gravel, in which some travellers have found marine shell. Growing out of the side of a cliff was a bushy tree, in which a pair of Choughs had made their roost. They were too shy for us; but later on our march we got several specimens, and found the species to be the European *Fregilus graculus*, L. (iris liver brown), called by the Pekinese *Hung-tsuy Yatsze* (Red-billed Crow).

In the afternoon of the 21st we reached Hwailai Hien, the hills having receded, and the country become more open and better cultivated. A small river runs to the south past this city, and is spanned by what was once a fine bridge of seven arches, leading to a gate in the city-wall. We dismounted, and walked along the river. We saw a Heron (*Ardea cinerea*), some Snipe, Golden Plover, and a large flock of Rooks (*Corvus pascinator*, Gould). Passing a mud-walled city, we continued, along a bad, stony road, to Shaching (or the Three Cities), where the inns were many and excellent. On the way we passed dilapidated towns and the ruins of limekilns, among which pigeons were breeding in very large numbers in a feral state. We shot several, and found that the reversion was not to the plumage of the Rock-pigeon of the country, *Columba rupestris* (Bp.) with a white bar to its tail, or to the ashy-rumped bird of India, *C. intermedia*, Strickland, but to the pure "Rock" of Europe, *C. livia* (L.). It must be from Europe, then, that the Chinese derived their breed of Pigeons. Iris light yellowish-chestnut. From our last roost to Shaching was reckoned seventeen miles.

On leaving Shaching (22nd September) we made for the N.W. corner of the hills on our right; to the left was a cultivated plain, with the Wenho (river) winding southwards through it, and barren-looking hills beyond. To the north of the walled town of Keming Yih a hill rises about 2000 feet, with a temple on its top. These hills are very bare of vegetation, covered with broken rock, and yield coal. Notwithstanding their sterility, the Chukar Partridge found them a pleasant retreat, and we were constantly breaking from the line of march to follow the chuckling that burst close above us. Flocks of

Swallows, *H. gutturalis* and *H. daurica*, were constantly seen; but passing the Keming Hill another species appeared on the scene. I detected it at once to be the *Cotyle rupestris* (Scop.). Its larger size, greater breadth of wing, and broader rump distinguished it, while flying, from the *C. riparia*. It occurred in small parties, perching and playing about the rocks. We saw them several times during this expedition. Iris liver-brown; wing extending half an inch beyond tail. Along the base of this hill-range the road reaches a gorge made by the hills on the left advancing, with the river racing through between over rocks and shallows. Emerging from the gorge, a large hilly patch of sand occurred, sparsely sprinkled with coarse grass. It was riddled with holes; and little rat-like creatures were standing on hind legs, or popping their heads out of the holes, or gambolling after one another, just as I have since seen the prairie-dogs do on my railway transit across the continent of America. A shot fired among them, and all disappear like magic. They move fast, but awkwardly, somewhat like Guinea-pigs. Their burrows twist and turn in the descent, so that one cannot reach down with a stick. One came skeltering along, squeaking, with another in pursuit, on to a grass patch. I secured it. Its irides were brown. It appears to be the animal that M. Milne-Edwards has figured in his outcoming 'Recherches des Mammifères' as *Spermolegus mongolicus*, and that from Amoorland, figured in Middendorff's 'Sibirische Reise' as *Arctomys (Sperm.) eversmanni* (Brandt). My specimen is light brown above, cream-colour below and along the sides. The tail is short, the first half inch of its length with short reddish hair, the rest with lengthened hair expanding into a spatula-shape, rufescent at its roots, a broad black ring on its centre, with broad creamy tips. Both Middendorff and Milne-Edwards in their figures convey a good idea of its appearance. A young specimen that I have from Peking has the upper parts much darker and ruddier, and the underparts buff-coloured; tail rufous, with short hair throughout. M. Gill, the amateur naturalist attached to the French camp, procured this animal in 1860 near Peking.

Over some tough stony hills we reach Heangshuypoo, twenty-three miles from our morning's start; and as there was still daylight, we pushed on over worn roads until, benighted, we were obliged to put up in a filthy cattle-stall at the dirty village of Neho-tsze, six miles further on. Dozens of carters and country roughs cooked, ate, smoked, and talked all night in our cabin, while a storm made the darkness horrible outside. We managed to pig it somehow, and survived the night.

Next morning (September 23) we trailed through the mud for the remaining five miles, and put up in an inn in the suburb outside the wall of Seuenhwafoo, the capital of this prefecture. It rained all day, and was cold and wretched. At this city the Roman Catholics have a prosperous mission, with European priests resident; and it was here that Père David got a great many of his good things. The streets were under water; so we had much difficulty in wading through the town. In one of its thoroughfares some live birds were offered



for sale; the best were *Garrulus brandti*, *Eophona personata*, *Leucodipterum sinense*, and *Acridotheres philippensis* (the last two from the south).

We travelled, on the 24th of September, the remaining twenty miles and reached Kalgan, or Changchiakow. Near this town the road again became stony, and the hills closed round to form the long pass which gradually ascends for thirty miles, until it places you on the boundless grassy plain of Mongolia. We passed many parties of Mongols with strings of camels, and driving troops of ponies, and several of their encampments. Crossing the Tungkeao (bridge) which spans the stream that runs down from the pass, we put up at a Mahommedan inn outside the city-wall.

On the 25th our Mahommedan host took us for a walk to show us the lions. Lower Kalgan, or Hiapoo, is the walled city of Wanstseuen Hien. The road leads past this town to Upper Kalgan, or Shangpoo, about three quarters of a mile distant, at the end of which, in a short gorge, is the gate of the famous or old Great Wall. Up the hill on either side runs the wall, or rather its ruined remains—in many places little more than a line of rubble; but up the mountain and down into the valley, as far as the sight can strain, it holds its serpentine course. The wall of the Nankow Pass supplements this, enclosing the prefecture of Seuenhwafoo, which belongs to the Chili province, but is still often called Mongolia. Our host told the guard of the gate who we were, and took us outside of China. Beyond the gate the pass was divided into two by a lower hill-range, with roads on each side which united further upwards. The roads were broken and rough in places, made of slabs of stone which had got displaced; and the hills were barren and had a scorched look like those of Aden. We were not tempted to continue our journey in jolting carts, and preferred spending our few extra days of leave in returning leisurely by the way we had come. Rooks, Magpies, and Kites were common about Kalgan, and *Reguloides superciliosus* and the Pied Woodpecker were the most frequent birds in the trees about the gardens in her suburbs. One of the latter I fired at died clinging to the top bough of a tree, and there was no getting it down.

We spent the morning of the 27th of September strolling about the neighbourhood of Keming. In the fields towards the river Rooks and Jackdaws were feeding; all the Rooks appeared to have feathered chins. Among the willows we found the Barbary Dove (*Turtur risorius*, L.). We frequently came across this species in this prefecture of Seuenhwafoo between the two walls, as also *Turtur gelastes* (Temm.). In the neighbourhood of Peking the latter occurred, but not the former; and, indeed, I have never seen the Barbary Dove in any other part of China. It is a tame, gentle bird, and easily approached. I procured both full-plumaged young without the neck-ring and adult birds. Its eyelid is pale yellow, iris chestnut-red; bill brownish black; legs madder-pink, with black claws. *Turtur gelastes* has the eyelid deep madder-pink, iris golden-sienna; bill brownish madder, browner on apical half; legs purplish madder, with black claws. Some little birds among the willows were uttering

a plaintive "teo" note. I shot one, and found it to be the *Reguloides proregulus* (Pall.). I also shot a *Phylloscopus fuscatus* (Blyth) creeping tamely about the grass. Pied Woodpeckers were common; and we got several. Snow lay on the distant peaks to the north-west. We made for the temple-crowned mountain. As we approached the road under it a flock of Chukars (*Caccabis chukar*) flew up from the corner of the stubble and took to the hill. We pursued, and had some good sport. The Chinese rightly enough name this the *Shihke-tsze*, or "Rock-fowl." Well up the hill-side a party of red-tailed birds were disporting, flying from rock to rock with loud notes. One was shot, and turned out to be a new form of *Accentor*, allied to *A. alpinus*, L. I exhibited it to this Society on the 24th of February, 1870, and proposed to name it *Accentor erythropygus*\*. We saw a few of them later in the Nankow Pass. On this hill we came upon another interesting bird; it was a Sparrow-like species of *Carpodacus*, of a sandy-grey colour tinted with rose. There were two together, of similar colour and form. We secured the male: iris black; bill light brownish horn-colour; legs liver-brown, ochreous on soles, with deep-brown claws.

The museum at Paris has received specimens of this species from Père David; but it has been there confounded with the *C. obsoletus* (Licht.), a species with a largish black bill (*cf.* *Nouv. Arch. du Muséum*, t. iii. p. 31). I find its nearest ally to be the *C. githagineus* (Licht.) of N.E. Africa, from which, however, it can at once be distinguished by its smaller bill. I will name it

**CARPODACUS MONGOLICUS, sp. nov.**

*Male.* Upper parts sandy grey, browner on the crown and back; feathers of the crown, back, and scapulars with brown centres; wing-feathers blackish brown, greater coverts broadly margined with rose-colour, the primary quills more narrowly, and tipped with creamy white, the brown of each feather paling near the white; secondaries broadly margined with cream and tipped similar to the primaries; tail deep brown, whitish on edges of inner webs and broadly edged on outer with cream-colour; sides of neck, throat, breast, and flanks light sandy brown; rest of underparts cream-white. Rose tinges the sides of the head, forehead, throat, cheeks, breast, flanks, and rump, brightest on the last.

Length about 5·3 inches; wing 3·63; first quill ·05, the longest; tail 2·3, forked; centrals ·3, shorter than outermost; upper tail-coverts extend to ·65 from the tip of the tail; bill ·34 in length, ·2 in breadth, ·29 in depth; tarse ·66; middle toe ·52, its claw ·24; hind toe 28, its claw ·26.

Near Shato, on the 28th, a small Owl showed itself on the top of a ruined brick-kiln, with wings expanded, basking in the sun. It was easily bagged. On our way out I had also seen one exposing itself on a ruin during the day. It turns out to be a new form of *Athene*, most nearly allied to *A. glaux* (Sav.) of S. Europe, in its pale colour, but differs from that as well as from *A. noctua* (L.) of N. Europe, and

\* See *antea*, p. 124, Pl. IX.



*A. bactriana* (Blyth) of Thibet, by its short tarse covered with long down, and by its well-clothed toes. I propose to distinguish it as the

*ATHENE PLUMIPES*, sp. nov.

Throat white, the white extending in crescent-form up each cheek in rear of ear-coverts (the lower white neck-ring of *A. noctua* is wanting); lores, round eye, and middle of belly also pure white; upper parts light reddish brown, with drops of reddish white on the head, and marked and spotted much as in *A. noctua*; underparts, leg-, and feet-feathers cream-colour, on the breast and flanks broadly streaked with reddish brown, like *A. glaux* (*A. noctua* being spotted with white on a dark ground and wanting the white on the centre of the belly); bill yellow tinged with green; irides light yellow; claws blackish brown.

Length about 8.5 inches; wing 6.2, of similar-proportioned quills to those of *A. noctua*; tail 3.6, of twelve equal feathers; tarse to base of hind toe .85, densely clothed with down-like feathers, .65 long; feet covered with shorter hair-like feathers, just showing scales at end of toes; soles bare and yellow.

Towards evening, as we drew near to Shato, very large flights of *Erythropus amurensis* (Radd.) and *Falco cenchris* (Naun.) appeared in the skies overhead, flying high to and fro and round like Swallows about the temples in the western hills; they were also to be seen at this season in large numbers preparatory to their migration. They must, however, wind away south-westwards, as they do not appear on the southern coast of China.

In the Nankow Pass we saw Eagles again, a small number of *Urocissa sinensis* (L.), and a single *Eophona personata* (T. & S.). One of my comrades shot the last, and had a piece of his finger nearly bitten out by the formidable mandibles of the bird. I noticed that the Crows here pursue and torment the Eagles just as fearlessly as they do the Kites in Southern China.

On the 30th of September we reached Peking just before the shutting of the gates.

In the last visit I paid to the museum I found a native with a live Nutcracker for sale. I engaged this man to collect for me, and through him got some very good things. He had worked for Père David. It was a pity that I had not got hold of him before, as now my time was getting short. He brought me three Nutcrackers, all females, of the European *Nucifraga caryocatactes* (Pall.), called by the Chinese the *Tsung hwa'rh*, or "Onion-flower." Irises dark, liver-brown, the same colour as the crown of their heads; bill, legs, and claws blackish brown.

Hawfinch, *Coccothraustes vulgaris*, ♀: iris light yellowish brown tinged with grey. *Zosterops erythroleura*, mihi: the female has less red on the flank than the male; bill light bluish grey, marked with black on upper mandible; legs deeper bluish grey.

*Accipitor palumbarius*, ♂. Bill brownish black, bluish grey at base; cere king's yellow marked with blackish brown, rictus king's yellow; inside of mouth light purplish blue marked with black; eyelids

black, iris fine clear yellow; legs and toes clear yellow, with black claws.

Left Peking on the 7th of October, and reached Chefoo by steamer on the 12th, where I spent a day or two. While out for a walk, put up a *Chefoo* Hare. This Hare is sent by the European residents at Chefoo to their friends in the south, and is a great treat when compared with the small species *Lepus sinensis* (Gray), which is the ordinary Chinese animal. It is, when cooked, as fully flavoured as the English Hare, and in general appearance greatly resembles it, but is smaller and varies in the colour of its fur from the brightness of *Lepus timidus* (L.) to a ruddy cream-colour. I have several specimens of its skin and skull, and I cannot distinguish it from *Lepus tolai*, Pall. Père David procured it in the neighbourhood of Peking, where I found the smaller and harsher-haired *L. sinensis* the prevailing species; and he also reports it common in Mongolia. My brightest specimen (♀) has the head pale rufous-brown, deeper on the forehead and crown, and somewhat yellow on the outer surface of the ears, all mottled with black, the black appearing in an irregular streak or two on the cheeks; the upper lips, chin, throat, and circle round the eye produced backwards in the form of a half eye-brow, are creamy white; moustache-bristles white, some of them brown near their bases; inner surface of ear rufous cream-colour; back of ear pale fawn-colour, with a broad brownish-black tip; on the hind neck behind the ears an unmottled light rufous patch occurs; back yellowish rufous, with most of the hairs broadly tipped with black; these hairs are dark brown towards their bases, with thick brownish-white down; rump and sides of thighs unmottled creamy rufous; tail black on upper surface; beneath white, as are all the underparts to the fore legs. Under neck, chest, sides of body and legs yellowish rufous, the fore legs with a creamy patch above the paws, and the inner surface of hind legs and feet creamy white. Long hairs are scattered over the upper parts.

	in.
Length from muzzle to root of tail . . . . .	19
——— of tail (including .75 of tip-hair) . . . . .	3
——— of head . . . . .	4
——— of ear . . . . .	3.80
——— of fore leg from shoulder . . . . .	6.75
——— of hind leg from hip . . . . .	9
——— of skull . . . . .	3.54
Width of skull (arch to arch) . . . . .	1.63
——— between orbits . . . . .	1.1
Length of nasal bones . . . . .	1.53
Width of ditto behind . . . . .	.81
——— of ditto in front . . . . .	.53
Length of incisive opening . . . . .	.88
Width of ditto behind . . . . .	.43
Length of the six upper molar teeth together . . . .	.65

A second specimen (♂) is lighter and more cream-coloured, with



the light-rufous hairs of the upper parts the same colour throughout, and only occasionally tipped with black. The ear at the back has only an apical margin of black; and the animal answers to Waterhouse's description of *L. tolai* (Mammalia, vol. ii. p. 48).

A third (♀) is paler, duller, and more dingy throughout than the last, with very little rufous, and its back is more mottled with black; but its apical ear-patch is as conspicuous as in the first. All three are from the same locality, and it cannot be doubted are of the same species; yet they vary so much in coloration. Their skulls, moreover, are of nearly similar form.

I have only fallen across two other mammals (not to speak of Bats) in North China not alluded to in this paper; and these are a Hedgehog and a Mole, which I procured when with the troops at Peking in 1860. I sent a specimen of each to this Society, and they were presented to the British Museum. Dr. Gray pointed out that the Mole was a new species, but did not assign it a name (P. Z. S. 1861, p. 390). Some years after, the Abbé David sent the Mole to Paris, and M. A. Milne-Edwards has described it as *Scaptochirus moschatus*. The Hedgehog Dr. Gray considered to be *Erinaceus collaris* (Gray) of South India; but it seems to me to be distinct from any thing yet described.

*Erinaceus dealbatus*, sp. n. from Peking. About the size of *E. europæus*, its nearest ally; much paler; spines shorter and thinner, and all setting backwards, pale brown, whitish at bases and tips; ears shorter, narrower, and more hidden; hair of underparts shorter, of a whitey-brown colour, with rufescent down at roots; face whitey brown, with brown ears (no black on the muzzle and round eyes as in *E. europæus*); feet small, pale brownish (and not black), with horn-coloured short claws.

The skull, which is that of an adult, shows a shorter muzzle; the molars in both jaws are comparatively smaller; the fronto-parietal suture occurs much further back; the frontal bones are longer and flatter, and the orbital prominence further back; the molar slopes gradually backwards, making a much less angle at its junction with the temporal. The skull is too injured to enable me to give measurements; but enough remains to show that it is distinct from that of *E. europæus*, with three of which I have compared it.

We left Chefoo by steamer on the night of the 17th October. The 18th was calm and fine; and the following birds appeared about the ship:—1 *Asio brachyotus*, 1 Skylark, 2 *Emberizæ personatæ*, 1 *Calliope*, 1 *Ianthia cyanura*, 1 *Ruticilla aurorea*, 1 *Coccothraustes vulgaris*, 1 *Batalis cinereo-alba*, 1 Pied Wagtail, and a Thrush. The last, while following the vessel, fell exhausted into the sea. Four male Gold-crests came into the ship, and were so tame that they were easily caught. Bill deep blackish brown; legs yellowish brown, with much lighter toes. In the older birds the shanks are deeper-coloured, and the toes light orange-brown with an orange-yellow wash on soles, the plumage brightens, and the yellowish green on the back mounts higher up. We were within 100 miles of the Shantung coast, which was our nearest land; and it is reasonable to

suppose that the birds wandered to us from there. I have never heard of the Gold-crest occurring in China; but this will be sufficient authority to enable us to enrol it on our list. The species is very close to the European *Regulus cristatus*; but Bonaparte separates it as *R. japonicus*. It has purer white on the lores and round the eye, and the hind neck is strongly tinged with grey.

On the 20th October we landed at Shanghai, and so finished our cruise to Peking and our glimpse at the Northern fauna.

9. On the Saiga Antelope, *Saiga tartarica* (Pall.). By JAMES MURIE, M.D., F.L.S., F.G.S., &c., late Prosector to the Society.

In the twelfth fasciculus of the 'Spicilegia Zoologica' of P. S. Pallas (published at Berlin in 1777—that is, nearly a hundred years ago) will be found not only an erudite historical and descriptive account of the *Antilope saiga*, considered in its external bearings, but also a very accurate *résumé* of all the anatomical structures of value as regards classification. The author likewise has figured the skull, stomach, and gall-bladder.

Pallas's observations, to my mind, contain the kernel of all that is useful for zoological purposes\*. As, however, there still remain points that seem worthy of investigation, I proceed forthwith to tender, as a communication, notes upon two specimens which have come under my inspection.

I may crave indulgence, under these circumstances, as, if some of the data I bring forward are not entirely new, they are doubtless not generally known. A benefit towards science may result from recognizing the correctness of Pallas's statements; whilst a fresh investigation, entering more into detail in some structures, at least admits of a reconsideration of the animal's affinities.

For the latter reason, and because a fuller description of this recent but ancient-like type of mammal may serve as a basis of future comparison to palæontologists as well as zoologists, I have written a lengthy account of the skeleton, which the naturalist above referred to briefly sketches rather than describes. The skull, in particular, offers several points of departure from the Antilopidæ, among which the Saiga is classed; and thus the taxonomic bearings of such aberrance is a factor of some importance.

## I. THE SKELETON.

### 1. *Spine and adventitious Bones.*

(A) *Vertebræ*.—The spinal column consists of 7 cervical, 13 dorsal, 6 lumbar, 4 united sacral, and 12 caudal elements, in all equal

\* Glitsch, I may mention, recently has usefully supplemented Pallas in a paper on the *Saiga*, chiefly devoted to its geographical distribution (*vide* Bull. Soc. Hist. Nat. Moscou, 1865, pp. 207–245).









2. Descriptions of seven new Species of Birds procured during a cruise up the River Yangtsze (China). By R. SWINHOE, F.Z.S.

(Plate XI.)

The following new species of birds were obtained by me during a voyage up the River Yangtsze in the spring of last year.

1. *LANIUS WALDENI*, sp. nov. (Plate XI.)

Crown, hind neck, and upper back clear bluish grey. Frontal band stretching above and below the eye, and covering the entire ear-coverts, deep black. Back, scapulars, rump, and upper tail-coverts fine brownish chestnut, transversely barred with black. Wing-feathers hair-brown, broadly margined with chestnut-brown, a few of the coverts having black bars, and the tertiaries a wash of chestnut with faint bars; the primaries are a darker brown, with narrower edgings. Tail chestnut-brown, faintly barred, the four outer rectrices on each side being tipped with white. Upper parts, axillaries, and carpal edge of wing a pretty cream-colour, almost primrose in some specimens; under edges of the inner webs of remiges pale salmon-colour. Four out of my five males show a few immature bars on the tibial feathers; and one has a long cream patch on the lores, while another has just the indication of it.

One of the two females has immature bars on the sides of the under parts, has a large cream patch on the lores, and a white half-eyebrow in rear of the eye-line. The other has the basal half of the under mandible pale, a smaller lore spot, the white half-eyebrow, and but a touch of bars on the sides of the breast.

Only one of the males shows the white half-eyebrow, and this the most fully adult one. We may say, then, that the sexes are alike, the males being more richly coloured.

Length about 6·75; wing 3·4; tail 3·1, outermost rectrix being ·65 shorter than the centrals; bill in front ·6, its depth ·33; tarse ·83. Sexes of about equal size.

Bill deep blackish indigo. Eyes large and full, with blackish-brown irides. Legs pale leaden, with a fleshy tinge.

I first saw this species in Fungtoo Hien, Szechuen, on the 5th of May. They were chattering in the trees in notes very similar to those of *L. lucionensis*. All those first procured were males. On the 11th of May, at Changshow Hien, further up the river, I got the first female; and on the 20th, at Chungking, they were paired and beginning to breed, and I observed plenty of them. When at Peking some months before, I noticed a single specimen in Père David's museum, which had been procured in that neighbourhood. The nearest ally of this interesting little Butcher-bird\* is the *Lanius*

\* Since the above was read I have seen an adult *L. magnirostris*, Less., of Malacca, in Lord Walden's collection, which leads me to believe that our Szechuen bird is that species in summer plumage. All the Malacca specimens that I have seen, from their light bills, are evidently in winter plumage, and in most cases immature.

*magnirostris*, Less., of Malacca and Sumatra. I have much pleasure in dedicating this novelty to our President, Viscount Walden.

## 2. *ABRORNIS FULVIFACIES*, sp. nov.

Forehead and face orange-buff. Upper parts olive-green. The feathers of the crown and occiput long and broad, with broad median blackish-brown streaks. Wings light hair-brown, broadly margined with olive-green. Rump primrose-yellow, greenish on upper tail-coverts. Tail pale olive-brown, broadly margined, especially on the basal half, with olive-green. Under parts dull white, yellowish on the chin, with a large patch of blackish mottling on the throat. A slight band crossing the breast, tibial feathers, and vent greenish yellow. Axillaries yellowish, with yellow carpal edge. Under edges of quills primrose-white. Sexes similar.

Bill brownish ochre, brown on culmen and tip of lower mandible, with black rictal bristles two-thirds the length of the bill. Iris rich brown. Legs and claws brownish ochre.

Length 3·3; wing 1·95; tail 1·7, of ten nearly equal feathers; bill in front ·24, its breadth at base ·12; tarse ·55; fore toes small, with small claws; hind toe large and long in proportion, with strong claw.

*Wing*: first quill ·82, second ·4, third ·15 shorter than fourth to seventh, which are nearly equal and longest.

This bird is nearly related to *Abrornis albogularis*, Hodgs., and *A. castaneiceps*, Hodgs., of Nepal and Sikhim. Both my specimens have only ten feathers in the tail. Jerdon does not speak of the number of rectrices in the two Himalayan species.

In the bamboo-groves that lined the mountainous sides of the river in Szechuen, about Chungchow and above, I often noticed this diminutive bird. The male utters a long-drawn plaintive whistle, and they chase one another with short chattering notes. On the 10th of May I watched a couple of them in an open copse in front of a cottage; they were picking up and carrying about small bits of straw, no doubt to build their nest with. They were so tame that they allowed me to come within a yard of them. I had not the heart to shoot them.

## 3. *ZOSTEROPS SUBROSEUS*, sp. nov.

Close to *Z. simplex* of South China in general colour and appearance. Has a shorter and straighter bill; a yellow forehead; a black line from above the rictus to the fore angle of the eye, encroaching on the white ring. Its wing is edged with darker green. Its axillaries white, with less yellow on the carpal edge. Its under parts greyish white, bluer grey on the sides of the breast, and dingier on the flanks. But the great mark of difference is in its having its belly and the sides thereof washed with a pretty rose-colour.

Bill indigo-black on upper mandible and apical third of lower, basal two-thirds pale indigo-grey. Irides light reddish brown, with whitish outer ring. Legs light lavender-lead, with dingy yellowish soles and under surface of claws.

Length of male about 4 inches; wing 2·25; tail 1·7; bill ·35; tarse ·6.



I got my single specimen of this species at Hankow from a bird-catcher, who was picking the birds off the trees in the foreign settlement by means of a little bird-lime stuck to the top of a bamboo-pole. He had secured only one of this species, but had plenty of *Muniae* and young Sparrows.

4. *PARUS VENUSTULUS*, sp. nov.

Head, throat, breast, neck, and back deep black, glossed with bluish purple. Cheeks and sides of neck, edges of central occipital feathers, a large spot on centre of nape, and some of the upper dorsals at tips, white. A little yellow washes the nuchal and dorsal white. Lower back, rump, and scapulars fine bluish grey, touched with yellowish green. Wing-coverts and tertiaries deep black; the lesser coverts tipped with large spots of white, the greater coverts and tertiaries with light greenish yellow. Quills dark hair-brown; secondaries margined with yellowish green, and lightly tipped with white; primaries yellowish green at basal margins, narrowly edged with white further upwards, and tipped with whitey-brown. Upper tail-coverts deep black, faintly tipped with green. Tail black, deeper and richer on basal half, edged with greenish grey on apical portion, and tipped with yellowish; the fifth rectrix with white on central edge, increasing outwardly to the first or outermost, which has the greater part of basal half of outer web white. Under parts fine sulphur-yellow, olivaceous on the sides and flanks. Axillaries and carpal edge yellowish white. Under edges of inner webs to quills white.

Bill indigo-black. Irides blackish brown. Legs, toes, and claws deep lead-colour. Bill typical, but large and thick for so small a species. Tail graduated inwardly or forked, the central rectrices .1 shorter than the outermost. Wing: first quill very short; second .2 shorter than the third and fourth, which are nearly equal and longest.

Length about 4 inches; wing 2.65; tail 1.6; bill .35, thick .15; tarse .64. Claws curved, strong; hind claw moderate.

This charming species occurred throughout the precipitous mountain gorges through which the great river runs from Kweifoo in Szechuen to Ichang in Hoopih. I found it at the latter place in company with *Parus minor*. It is a very active little species, and has quite a peculiar sibilant note. Its yellow belly recalls *Parus monticola* of the Himalayas, but it wants the black mesial stripe. I could scarcely believe at first that I had got a distinct species, as in Formosa we find the *P. insperatus*, which is little more than a race of the *P. monticola*, and I expected that a black and yellow Tit from Central China would be either that or the Himalayan bird itself.

5. *ÆGITHALUS CONSOBRINUS*, sp. nov.

*Male.* Crown light grey, with a few blackish streaks and a few broader white ones. A black line runs over the bill, lores, under the eye, over the ear-coverts, and a little beyond. Above the black over the bill a white line occurs, passing in a distinct eyebrow over and beyond the eyes. Under the black line a white one starts from the base of the lower mandible, and extends onward to meet the eyebrow white beyond the black ear-coverts. Back and scapulars light russet

buff, a deep russet or maroon collar stretching across the hind neck. Wing-coverts blackish brown; the lesser broadly margined with russet buff, the greater on basal half with deep russet, on apical half with light buff. Winglet and primaries hair-brown, narrowly edged with brownish white, the secondaries broadly so, russet at base of edgings, increasing greatly on the tertiaries, which are nearly white, the brown being washed with chestnut and confined to the neighbourhood of the shafts. Lower back well tinged with buff. Upper tail-coverts whitey-brown, with blackish median streaks. Tail hair-brown, with light buff edgings to the feathers. Under parts pale russet buff, nearly white on the throat, deep russet or maroon on the sides of the breast adjoining the nuchal collar; buff on the carpal joint and along the sides of the body. Under edges to quills buff-white.

*Female.* Dingy grey on the head and hind neck, the dark specks on the crown smaller. Back darker and dingier. The nuchal collar and the lateral breast-spot missing. Eye-stripe brown instead of black; the white above and below the stripe less pronounced. Otherwise similar to the male, but not so bright.

Bill long-conical and pointed, flesh-white, washed with blackish on the culmen and gonys, darker on the former. The male's bill is darker than the female's. Eyes black. Legs strong, deep dingy indigo-grey, including feet and claws.

Length 4 inches; wing 2·25, first quill diminutive, second and third equal and longest, fourth a trifle shorter. Tail 1·75, of twelve feathers narrowing to a point at tips, and graduated inwardly or forked; centrals ·25 shorter than outermost. Bill in front ·35, to gape ·44; tarse ·56; hind toe ·28, its claw ·25.

Walking through the immense market-town of *Sha-she*, on the river below Ichang, I spied a pair of these little Penduline Tits in a cage on a shop counter. I was told that they were captured in the neighbourhood. I consider the discovery of this species most interesting, as affording a case analogous to that of *Cyanopica*, which appears restricted to Spain and Portugal in Europe and then turns up in China about the Yangtze and northwards, extending to Japan, in a somewhat modified form. The Penduline Tit occurs only in South Europe; and we find it again rather changed on the banks of the Yangtze 850 miles from the sea.

*Egithalus pendulinus* of Europe has a great deal shorter and smaller bill than the Chinese bird, the black cheek-stripe is more extended, and the white eyebrow and moustache are wanting. The deep russet spreads over the back, scapulars, and wing-coverts.

#### 6. *EMBERIZA ELEGANTULA*, sp. nov.

Female allied to that of *E. elegans*, Temm., but smaller, with less-distinct crest, longer and more *Euspiza*-like bill, with the streaks and spots darker and more decided.

Upper parts brownish grey, the feathers on the crown with deep-brown median streaks; on the hind neck marks of chesnut-brown; on the back and scapulars broad median black streaks, changing sideways on each feather into chesnut-brown. Eyebrow yellowish white, becoming richer and extending into a bright yellow band across



the occiput, which is almost concealed by the long coronal feathers ; lores, under eye, and ear-coverts brown ; throat and breast light brownish buff, the latter marked with short streaks of brown. Axillaries and remaining under parts white, broad black and brown streaks running along the flanks and at the base of the tibiae. Wing-coverts black, narrowly edged with brownish grey, and tipped with creamy white, forming a double bar across the wing ; quills hair-brown, narrowly margined with pale reddish brown ; the tertiaries blacker, with their edgings broader and washed with rust-colour ; inner edges to quills whitish ; outermost tail-feather white, with the apical two-thirds of outer web pale brown ; second rectrix brown on outer web, white only on apical two-thirds of inner web, making a sharp angle at the shaft with the brown which thence mounts obliquely towards the tip ; rest of the rectrices, except the two central, deep brown ; the centrals brownish grey, edged paler, with brown stems.

Bill blackish grey, darkest on the apical two-thirds. Irides deep brown. Legs yellowish flesh-colour, with brownish claws.

Length about  $5\frac{1}{4}$  inches ; wing 2.65 ; tail 2.5 ; bill .63, its depth at base .18 ; tarse .62 ; hind toe .30, claw .25.

The female above described is the only specimen I procured. It was shot on the sides of the mountain-gorge near Kweichow, the westernmost city of Hoopih province on the Yangtze, on the 18th April, 1869. I took it at first for the female of *E. chrysophrys*, but it is more nearly allied to *E. elegans* than to that species. Mr. Tristram, after carefully examining and comparing my specimen, pronounced it distinct, and urged me to describe and name it at once.

#### 7. PHASIANUS DECOLLATUS, sp. nov.

*Male.* Differs from *P. torquatus* of China in having the crown deep brown, its feathers margined with bronzed reflections ; in having no white superciliary mark, and no indications of a white collar. The bare red skin of the face is very small. Entire neck fine duck-green, with purple reflections. The feathers of the upper back differ from those in *P. torquatus* in having their centres black, with a narrow median yellowish streak and broad chestnut cross mark. Those of the breast are a duller chestnut, with their black margins reflecting green instead of purple. The black bars of the tail are about the same distance apart, but are much broader.

Bill pale lemon-yellow, slightly tinged with brown. Iris yellow. Eyelid blood-red, fringed with black. Face-skin blood-red, speckled with black. Legs light bluish grey, with brown-tinged toes and claws, the latter tipped with black.

Length of wing 9.25 inches ; of tail about 18 ; bill in front 1.38 ; tarse 2.65.

On the 13th of May, 1869, the day after our arrival at Chungking-foo in Szechuen, the servant returned from the market with this Pheasant. He fortunately showed it to me before he handed it to the cook. I was at once struck by the absence of the collar, and tried to get more specimens, but without success. The natives declared that they had never seen the Pheasant with the white collar. I consider the want of the collar a very striking peculiarity, as, among the

large number of Chinese Pheasants that I have seen from various parts of China, I have never met a collarless specimen, nor have I ever heard of such a thing. I have, moreover, been assured by friends at home that if in a descendant of a cross between *P. colchicus* and *P. torquatus* any mark of the latter remains, it is sure to be accompanied by a white collar. But, independent of the lack of the neck-ring, I have shown that there are other characters to distinguish the species. It is impossible to presume that our bird could be a cross between the two mentioned species; for between the habitats of our new species and the *P. colchicus* the broadly collared *P. mongolicus* has place. Dr. Anderson of Calcutta procured from Yunnan, the neighbouring province to Szechuen, a collarless species that answers to a cross produced between *P. colchicus* and *P. versicolor* of Japan! It would surely be absurd for one moment to suppose that these two from such distant localities could have met in that wild Mohammedan stronghold. I have a Pheasant from Hankow, 750 miles lower down the river than Chungking. This agrees with the ordinary *P. torquatus* in every respect, except that its broad white collar is broken in the front of the neck, the two ends of the ring being three-quarters of an inch apart. In the markings of the tail the pale-flanked Formosan variety of *P. torquatus* comes nearest to our bird, the bars on the tail of that race being broader and further apart than is ordinary in Chinese specimens.

### 3. On the Plovers of the Genus *Ægialites* found in China.

By R. SWINHOE, F.Z.S.

(Plate XII.)

#### Section I. *Ringed Plovers.*

On ascending the River Yangtze into the Province of Szechuen I noticed on the rocky and sandy flats, exposed by the falling water, a species of Sand-plover that I had not met before. I took it at first for *Æg. geoffroyi*; but the note it uttered as it rose and flew away was peculiar. It occurred singly or in pairs in May, and was, I believe, breeding, though I did not succeed in finding its eggs. It was shy of approach and somewhat scarce. I was fortunate enough to procure two males and one female. It belongs to the group with double pectoral band, which is represented in America and Africa by *Æg. vociferus* (Linn.) and *Æg. tricoloris* (Vieill.) respectively. I propose to name it in honour of Mr. J. E. Harting, who has made the *Limicolæ* his especial study, and whose kind assistance I have to acknowledge.

#### 1. *ÆGIALITES HARTINGI*, sp. nov. (Plate XII.)

Forehead, ring round the neck, and under parts pure white. Upper parts light greyish brown. A broad black patch occurs above the forehead from eye to eye, edged in rear with a narrow indistinct white line. Streak from bill to eye, and continued under the eye







J. Smit lith.

M. & N. Hanhart imp.

ACCENTOR ERYTHROPYGIUS.



I will in conclusion briefly recapitulate the main characters of this black-backed group of the *leucopsis* type. General characters the same in all, as given above.

1. *Motacilla leucopsis*, Gould. With narrow black pectoral band. India.

2. *M. felix*, sp. nov. With the whole breast black. South China (Canton to Shanghai).

3. *M. felix*, var. *sechuenensis*. Breast black to the bill. Western China (Szechuen).

4. *M. francisi*, sp. nov. Breast, ear-coverts, and moustache black. China. Extreme west and south (Szechuen and Hainan).

### 3. On a New Species of *Accentor* from North China.

By R. SWINHOE, F.Z.S.

(Plate IX.)

On my journey back from Mongolia to Peking in the Prefecture of Seu-en-hwafoo, which is a tract of country enclosed by two portions of the Great Wall, we halted on the 26th September, 1868, at a place called *Kemeih*, and climbed up the sides of a high mountain, on the top of which stood a monastery. We were in pursuit of the Rock-partridge (*Caccabis chukar*), when a party of red-tailed birds whisked past us and, perching near, kept flying from rock to rock, uttering loud notes. We secured one, and then continued our chase after the Partridges. A few days later I saw another small flock of the same species among the rocks of the fine mountain-pass that leads through the Nankow Gate to the Peking plain. The bird procured was an *Accentor* of the *alpinus* type, most nearly allied to *A. nipalensis* of Hodgson.

ACCENTOR ERYTHROPYGIUS, sp. nov. (Plate IX.)

Head, neck, and breast smoke-grey; lores and under eye mottled with white. Throat for nearly an inch downwards white, with narrow bars of black. Lesser and greater coverts and winglet black, with a large spot of white tipping each feather. Secondary quills black, margined for the greater part of their length with yellowish brown, and broadly tipped with light chestnut terminating with white; on the tertiaries the chestnut brightens, and increases in extent, and the terminal white spots are conspicuous. Primaries blackish brown, edged with light yellowish brown, browner near their bases, and lightly tipped with white. Back light yellowish brown, with broad brown centres to the feathers. Scapulars brownish chestnut, with a median streak of blackish brown and a small white tip to each feather. The yellowish brown of the back soon brightens into brownish chestnut, which is rich and conspicuous on the upper tail-coverts, the longest of which have black centres. Tail brownish black, the outer rectrix with the greater part of its outer



web brownish chestnut, with a broad white tip to the inner web; the rest of the rectrices, except the two centrals, have their outer webs tipped with chestnut, their inner webs with white, and they are narrowly edged with light yellowish brown; the two centrals are more broadly edged and have broad chestnut marks on both outer and inner webs towards the tips. Axillaries dusky, the carpal edge being barred with black and white like the throat. Underparts light yellowish brown, many of the flank-feathers being deep chestnut-brown with white margins, and the abdominal feathers with blackish V-shaped bars and white margins. Under tail-coverts blackish chestnut, with broad white margins and tips.

Bill blackish brown, ochreous-yellow on the sides of the basal half of the lower mandible. Iris chestnut. Legs and toes ochreous, with light-brown claws.

Length about 7·5 inches, wing 4·2, tail 3, bill in front ·55, tarse ·85.

This handsome species may be at once distinguished from its nearest ally, the *Accentor nipalensis*, by the chestnut colour that marks its rump, upper tail-coverts, and tail, by its greyer head and neck, and by the markings of the flanks and belly. *Accentor altaicus*, Brandt, and *A. alpinus*, L., are also members of this group of mottled-throated *Accentors*.

The only other *Accentor* that has been found in China is the *A. montanellus*, Pall., of which Père David has sent me two specimens procured in the neighbourhood of Peking.

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March 10, 1870.

John Gould, Esq., F.R.S., V.P., in the Chair.

The Secretary spoke of the additions to the Menagerie during the month of February, and called particular attention to the following:—

1. A Brown Hyæna (*Hyæna brunnea*) from South Africa, purchased of a London dealer on February 7th, being the second specimen of this rather rare Carnivore ever possessed by the Society. The previous specimen (which was a female, purchased in 1853) had died on the 14th of August, 1866.

2. A Cape Grass-owl (*Sceloglax capensis*) from South Africa, purchased February 7th. And

3. A Cape Horned Owl (*Bubo capensis*), purchased the same day. Both these birds were believed to be the first specimens of their respective species exhibited in the Society's Menagerie.

4. A Kangaroo, purchased of a London dealer on the 25th of February, and presenting the appearance of being a young animal





and no trace of a crest. In fact the marked differences between them are so great that, were there no other species to serve as a link, we should unhesitatingly propose the latter as the type of a new genus. The link is found in *T. cafer* of Le Vaillant, which has the occipital crest fully developed, but in different specimens presents almost every gradation between the two forms of bill. A specimen received yesterday from Mr. J. H. Gurney settles the question, having the bill in shape precisely similar to *T. purpuratus*.

The genus *Trachyphonus* has been included with *Capito* of Vieillot by Schlegel; but this arrangement leads rather to confusion, as the latter is confined to America and differs in the length of tail, which averages two-thirds the length of the wing, while in the former it is as long or longer, and the genus is confined to Africa.

*Buccanodon* of Verreaux, of which there is but a single species (*B. duchaillui*), we are unable to maintain; it agrees exactly with *Xylobucco scolopacea*, the type of *Xylobucco* of Bonaparte, as will be seen by the figures (p. 119). This latter genus is closely allied to *Barbatula* of Lesson; but as there is no good connecting-link known at present, we have retained them both.

## 2. On the Pied Wagtails of China.

By R. SWINHOE, F.Z.S.—Part I.

Without comparison of specimens, Indian authors have referred their white-faced black-backed Wagtail to the *Motacilla luzonensis* of Scopoli; and putting faith in Blyth's identification of the ordinary Chinese bird, I have followed suit with ours. Two other races of the same type having been lately procured by me in China I have been led to study this group, and now beg to offer the result of my investigations to the Society.

Not being able to procure a specimen of the Philippine bird, I have nothing to go upon except Scopoli's and Sonnerat's descriptions.

Sonnerat procured from Luzon and described a *grey-backed* pied Wagtail, which he tells us is closely allied to the *grey-backed* pied Wagtail of Europe; but he gave it no name. His description (*Voyage à la Nouvelle Guinée*, 1776, vol. i. p. 61) runs thus:—"It differs very little from the Grey Wagtail of Europe; it is of the same size and nearly the same plumage, and absolutely the same habits; the top of the head or the part which answers to the forehead, round the beak, throat, and cheeks are white; the back of the head, all the hind neck, base of the neck in front, and upper breast are black; the *back is ashy grey*, the belly is white. There is on each wing a broad white longitudinal spot, which extends from the bend of the wing, or the bastard-wing, across the entire wing; the large quills are black, edged with a white border all round, except the outermost quill, which is quite black; the tail is black above, whitish below; the two outer rectrices of each side are white; the beak and feet are black, iris hazel."



This grey-backed species Scopoli actually diagnoses as *black-backed*, thus:—

“ 105. *Motacilla (luzonensis) nigra*; *fronte, gula, pectore, abdomine et fascia alarum albis.*

“ *Oculi intra aream albam. Pone oculos linea alba, sursum arcuata. Rectrix prima alba.*

“ In insula Luzon, p. 60, tab. 29 (referring to the plate in Sonnerat's work).”—*Deliciæ Floræ et Faunæ insubricæ*, by J. A. Scopoli, 1786, part ii.

With such a wrong diagnosis of characters this name can scarcely stand for the *grey-backed* pied Wagtail of Luzon, to which it evidently refers. There may be also a black-backed species in Luzon to which this description would in all probability apply. At all events, through Sonnerat we now know that it refers to a grey-backed species similar to and of the same size as *M. alba* of Europe. Such a bird is *M. dukhunensis*, Sykes, of India, and not the small black-backed type hitherto identified with the Philippine species and bearing Scopoli's name. We must therefore adopt for the Indian species the term *M. leucopsis*, Gould (P. Z. S. 1837, p. 78).

#### MOTACILLA LEUCOPSIS, Gould.

Length of wing 3·7, of tail 3·75, of tarse ·92. Upper parts from centre of crown black. Wing-coverts broadly margined with white, concealing the black of their bases and forming a pure white bar across the wing. Tertiaries and winglet broadly edged, secondaries conspicuously edged and tipped, and primaries edged to their curve and lightly tipped with white. Axillaries and broad under edges to quills white. Upper tail-coverts more or less edged exteriorly with white. Tail black, the outermost feather pure white, the next with a black border to its inner web. *Breast with a black band not exceeding  $\frac{1}{2}$  inch in breadth.* Bill and legs black.

*Hab.* in India.

The above description is taken from Mr. Gould's type specimen and another in his collection.

In China, from Canton to Shanghai, occurs a race of the above bird which is to be distinguished from the Indian by its whole breast being black. This I have hitherto considered the same as the species of India, but will now separate as

#### MOTACILLA FELIX, sp. nov.

Length of wing 3·6, of tail 3·6, of tarse ·92. General plumage very similar to the last. The tail has the outermost feather as well as the one next to it bordered on the inner web with black; but among my large series I have a specimen or two in which the outermost is wholly white. The most notable difference is in the breast, which in full summer plumage is black, the black extending upwards till it reaches about  $\frac{1}{2}$  inch from the base of the gonys of the bill. Winter and summer this black is conspicuously large. In some specimens a few black speckles show themselves on the white of the

throat, but in no bird of my collection from the coast is the throat black.

Fig. 1.

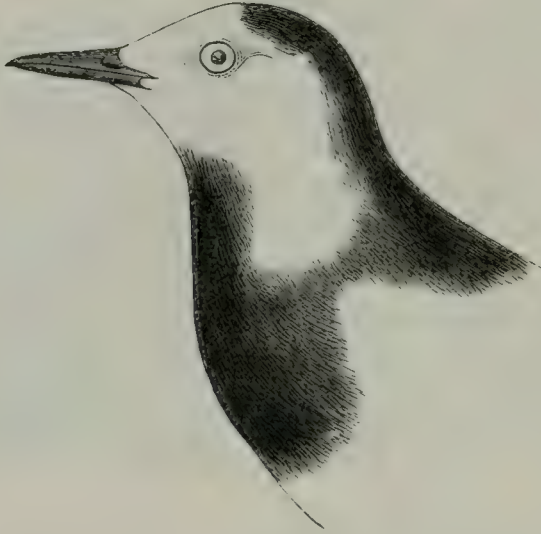
*Motacilla felix.*

Fig. 2.

*Motacilla felix*, var. *sechuenensis*.

In my late trip up the *Yangtsze* at *Wooshan* and *Yunyang* (over 1000 miles from the coast in Western China) I procured at the end of April examples of apparently the same bird with the throat and



chin also quite black. The two forms are otherwise so alike that I cannot possibly separate them specifically, but will distinguish the blackest bird as *M. felix*, var. *sechuenensis* (from Szechuen, the province in which it occurred).

From the Amoor, V. Schrenck describes a Wagtail as *M. alba*, var. *paradoxa*, that looks like another race of this section.

We come, lastly, to an ally of this black-backed group, but with somewhat the face of Mr. Gould's grey-backed *M. personata* of India (Birds of Asia, part 13), for which I beg to propose the name

*MOTACILLA FRANCISI*, sp. nov.

Length of wing 3·55, of tail 3·7, of tarse 93. General colour the same as in *M. felix*. Its main difference lies in the black being more advanced towards the forehead in a line with the front corner of the eye, then stretching back, leaving a white eyebrow and advancing at a sharp angle over the ear-coverts to the rictus of the bill; an intervening border between it and the eye and the throat white.

Fig. 3.



*Motacilla francisi*.

I got an adult male of this species on the 19th May last, near Chungking city in Szechuen. I had previously got it at Hainan in undeveloped plumage; but in this plumage the black markings on the cheeks and on the dotted line under the eye are sufficient to distinguish it from *M. felix*, which is otherwise so like it. In the Hainan specimen the third outer tail-feather has a long white blotch of white on its inner web, and the wings are more broadly edged with white than in the Szechuen bird. A second example from Hainan, more immature still, wants the tail-blotch, but shows some dark markings on the cheeks. I consequently take the Hainan and Szechuen birds to be the same. I have dedicated this species to Mr. Robert Francis, one of the two delegates of the Shanghai Chamber of Commerce who accompanied me up the Yangtze.

I will in conclusion briefly recapitulate the main characters of this black-backed group of the *leucopsis* type. General characters the same in all, as given above.

1. *Motacilla leucopsis*, Gould. With narrow black pectoral band. India.

2. *M. felix*, sp. nov. With the whole breast black. South China (Canton to Shanghai).

3. *M. felix*, var. *sechuenensis*. Breast black to the bill. Western China (Szechuen).

4. *M. francisi*, sp. nov. Breast, ear-coverts, and moustache black. China. Extreme west and south (Szechuen and Hainan).

### 3. On a New Species of *Accentor* from North China.

By R. SWINHOE, F.Z.S.

(Plate IX.)

On my journey back from Mongolia to Peking in the Prefecture of Seu-en-hwafoo, which is a tract of country enclosed by two portions of the Great Wall, we halted on the 26th September, 1868, at a place called *Kemeih*, and climbed up the sides of a high mountain, on the top of which stood a monastery. We were in pursuit of the Rock-partridge (*Caccabis chukar*), when a party of red-tailed birds whisked past us and, perching near, kept flying from rock to rock, uttering loud notes. We secured one, and then continued our chase after the Partridges. A few days later I saw another small flock of the same species among the rocks of the fine mountain-pass that leads through the Nankow Gate to the Peking plain. The bird procured was an *Accentor* of the *alpinus* type, most nearly allied to *A. nipalensis* of Hodgson.

#### ACCENTOR ERYTHROPYGIUS, sp. nov. (Plate IX.)

Head, neck, and breast smoke-grey; lores and under eye mottled with white. Throat for nearly an inch downwards white, with narrow bars of black. Lesser and greater coverts and winglet black, with a large spot of white tipping each feather. Secondary quills black, margined for the greater part of their length with yellowish brown, and broadly tipped with light chestnut terminating with white; on the tertiaries the chestnut brightens, and increases in extent, and the terminal white spots are conspicuous. Primaries blackish brown, edged with light yellowish brown, browner near their bases, and lightly tipped with white. Back light yellowish brown, with broad brown centres to the feathers. Scapulars brownish chestnut, with a median streak of blackish brown and a small white tip to each feather. The yellowish brown of the back soon brightens into brownish chestnut, which is rich and conspicuous on the upper tail-coverts, the longest of which have black centres. Tail brownish black, the outer rectrix with the greater part of its outer



the Chinese province of Szechuen, beyond the town of Ta-tsien-loo, through which runs one of the great routes to Lhasa.

According to information received from Mr. Stone, it seemed probable that the collections of bird-skins received in Paris, which contained the new Impeyan (*Lophophorus l'huysi*), the new *Ithaginis* (*I. geoffroyi*\*), and the new *Crossoptilon* (*C. drouynii*†), had been also made in the same district, which would thus appear to be a country of no ordinary interest as regards its *Phasianidæ*.

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The following papers were read:—

1. On the Pied Wagtails of China.

By ROBERT SWINHÖE, F.Z.S.—Part II.

At the last Meeting of the Society a paper of mine was read on the Pied Wagtails of China (see *antea*, p. 120). In that I confined my attention to the *Motacillæ* with white faces and black backs. In the present notice I wish to make the list complete by adding the other species of the group that I have met with in that empire.

4. *MOTACILLA FRONTATA*, sp. nov.

The only specimen of this was a male procured in Amoy on the 30th November, 1866. I reported the occurrence in my "Notes on Amoy Ornithology" (*Ibis*, 1867, p. 390). It is a small species, in form more nearly related to *M. ocularis*, mihi, than to *M. felix*, mihi, but wants the black eye-streak of the former.

Length about 7 inches; wing 3·4; tail 3·5; bill ·45, short and slender; tarse ·83, with small feet and claws. Wing blacker than in *M. felix*, with the winglet and primaries only slightly edged with white. Tail similar. The upper parts are becoming black. The crown and nape black; *forehead also black*, the bases of the feathers white. The nuchal black advances to the ear-coverts, and a broad crescent of the same marks the breast. What the full nuptial plumage would be, it is not easy to guess; but I fancy the whole face and neck would be black, leaving only the eyebrow and throat white. Its greatest peculiarity is in the black forehead, which characterizes *M. lugubris*, Pall., of Western Siberia, and *M. maderaspatana* of Bengal, but is not possessed by any of the others of our Chinese Wagtails.

I was at first inclined to think that this bird might be a cross between *M. ocularis* and *M. felix* (see *Ibis*, *l. c.*); but the black forehead prevents this supposition. I am now of opinion that it is a good species, with a habitat of its own, but, like most of the Pied Wagtails, that it moves about in winter, and has thus strayed to Amoy.

5. *MOTACILLA OCULARIS*, Swinhoe, P. Z. S. 1863, p. 17.

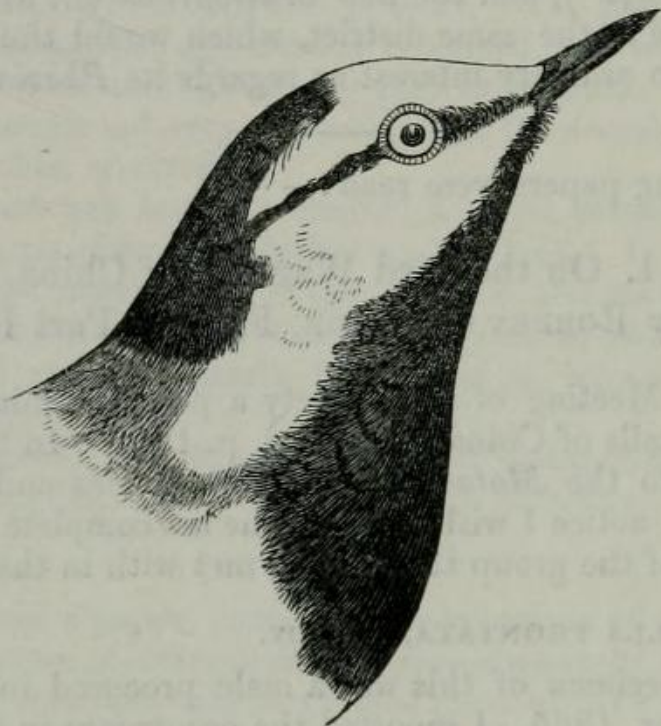
This species with a grey back I have from various localities from

\* Verreaux, Bull. Soc. Acclim. Paris, 1867, p. 709.

† Verreaux, Nouv. Arch. d. Mus. iv. Bull. p. 85, pl. 3.



Hainan to Peking; it also occurs in Formosa. It is resident in all the places that I have observed it, and is probably the *M. albeola*, var. *kamschatica*, of Pallas. I have already described it (P. Z. S. l. c.), and now exhibit a diagram of the head and neck in full breeding-plumage.



*Motacilla ocularis.*

6. *MOTACILLA JAPONICA*, Swinhoe, P. Z. S. 1863, p. 17.

This Japanese ally of the last, distinguished by its black back and much whiter wing, is only a winter visitant to the coasts of China and Formosa. In P. Z. S. (l. c.) a description will be found of it. I gave it a new specific name (Ibis, 1863, p. 85, note), as both *lugens* and *lugubris* had already been applied to the very different western species. I have brought the plate illustrating this bird in the 'Fauna Japonica' to show how much the summer dress of this differs from that of our Chinese *M. ocularis*.

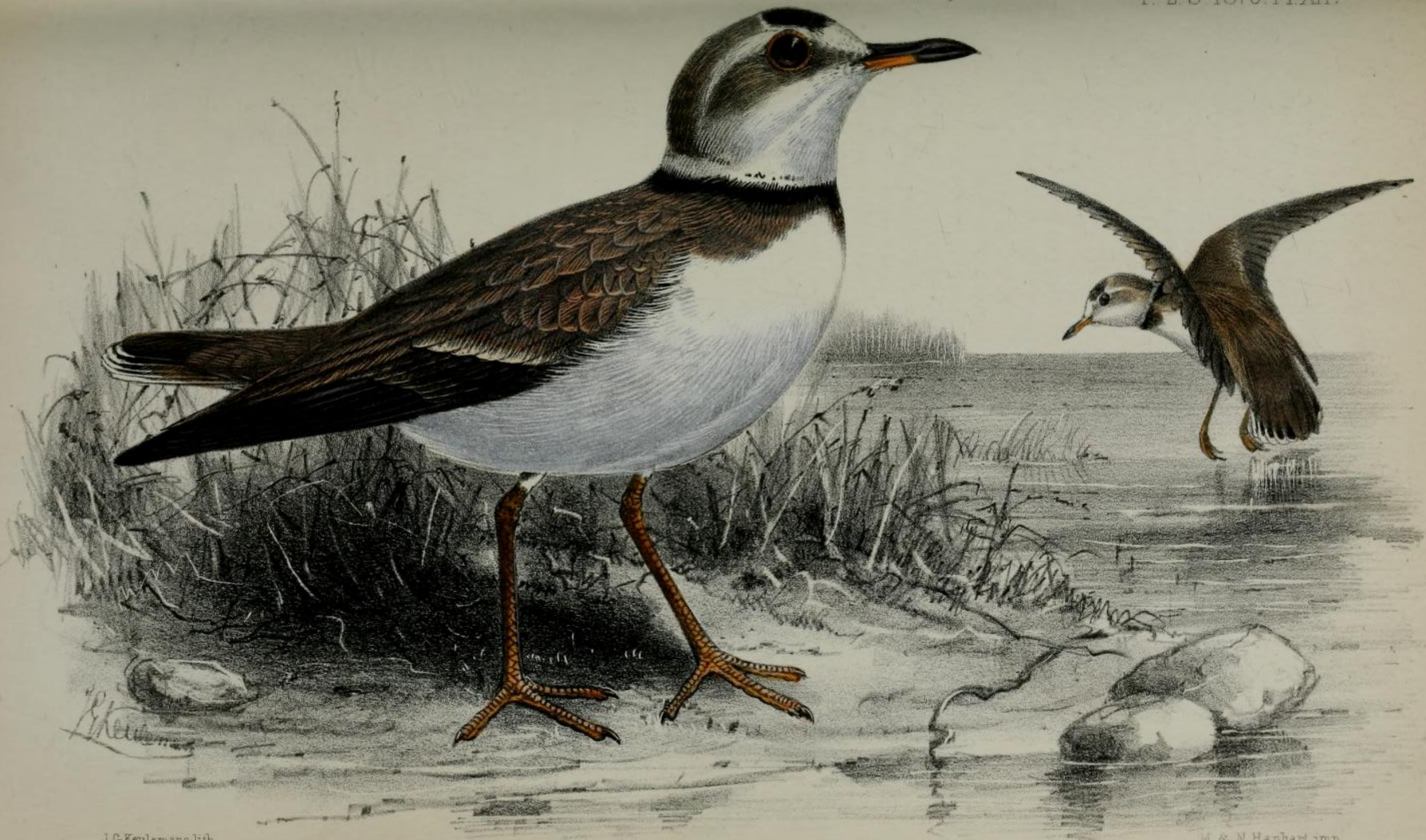
7. *MOTACILLA DUKHUNENSIS*, Sykes?

In Szechuen, 1100 miles up the Yangtze, I several times observed a grey-backed Wagtail with a white face, about the size and appearance of the *M. alba* of Europe. On more than one occasion I saw it feeding full-fledged young. Unfortunately, however, I did not secure a specimen. It is more likely to have been the Indian than the European race of this group of Wagtails, and therefore I refer it with a query to the former.

This ends our list of Pied Wagtails, which shows a goodly series.







J. G. Keulemans lith.

M. & N. Hanhart imp.

ÆGIALITIS HARTINGI.



large number of Chinese Pheasants that I have seen from various parts of China, I have never met a collarless specimen, nor have I ever heard of such a thing. I have, moreover, been assured by friends at home that if in a descendant of a cross between *P. colchicus* and *P. torquatus* any mark of the latter remains, it is sure to be accompanied by a white collar. But, independent of the lack of the neck-ring, I have shown that there are other characters to distinguish the species. It is impossible to presume that our bird could be a cross between the two mentioned species; for between the habitats of our new species and the *P. colchicus* the broadly collared *P. mongolicus* has place. Dr. Anderson of Calcutta procured from Yunnan, the neighbouring province to Szechuen, a collarless species that answers to a cross produced between *P. colchicus* and *P. versicolor* of Japan! It would surely be absurd for one moment to suppose that these two from such distant localities could have met in that wild Mohammedan stronghold. I have a Pheasant from Hankow, 750 miles lower down the river than Chungking. This agrees with the ordinary *P. torquatus* in every respect, except that its broad white collar is broken in the front of the neck, the two ends of the ring being three-quarters of an inch apart. In the markings of the tail the pale-flanked Formosan variety of *P. torquatus* comes nearest to our bird, the bars on the tail of that race being broader and further apart than is ordinary in Chinese specimens.

### 3. On the Plovers of the Genus *Ægialites* found in China.

By R. SWINHAE, F.Z.S.

(Plate XII.)

#### Section I. *Ringed Plovers*.

On ascending the River Yangtze into the Province of Szechuen I noticed on the rocky and sandy flats, exposed by the falling water, a species of Sand-plover that I had not met before. I took it at first for *Æg. geoffroyi*; but the note it uttered as it rose and flew away was peculiar. It occurred singly or in pairs in May, and was, I believe, breeding, though I did not succeed in finding its eggs. It was shy of approach and somewhat scarce. I was fortunate enough to procure two males and one female. It belongs to the group with double pectoral band, which is represented in America and Africa by *Æg. vociferus* (Linn.) and *Æg. tricoloris* (Vieill.) respectively. I propose to name it in honour of Mr. J. E. Harting, who has made the *Limicolæ* his especial study, and whose kind assistance I have to acknowledge.

#### 1. *ÆGIALITES HARTINGI*, sp. nov. (Plate XII.)

Forehead, ring round the neck, and under parts pure white. Upper parts light greyish brown. A broad black patch occurs above the forehead from eye to eye, edged in rear with a narrow indistinct white line. Streak from bill to eye, and continued under the eye

over the ear-coverts, brown more or less mixed with black. A pure white half-eyebrow above the ear-coverts. On hind neck, below the white ring, a broad black ring extending across the breast; below this a narrow white pectoral bar, succeeded by a broad one of brown more or less mixed with black. Lower edge of wing white; greater wing-coverts broadly margined at their tips with the same. Winglet deep hair-brown. Quills lighter hair-brown, edged and tipped paler; inner secondaries broadly edged with white. Tail light brown; the two central feathers entirely so, but of a much darker hue near their tips; the rest with a broad white tip, succeeded by a blackish-brown broad bar, the black mounting higher on the outer side of the shaft, and the white increasing towards the outermost feather, of which the edge of the outer web, its entire basal portion, and its shaft are white.

Bill blackish brown, the basal third of its lower mandible orange-yellow. Eyelid orange-yellow; eye full and dark. Legs pale ochreous, deeper on toes, with black claws.

Length about 8 inches; wing 5·75; tail 3·2; bill in front ·8; naked tibia ·65; tarse 1·2; middle toe (claw ·17) 1·2, outer toe (claw ·15) ·88, inner toe (claw ·14) ·7. A slight web occurs between the outer and middle toes, running in a deep curve from the first joint of the one to that of the other. The feet extend when stretched backwards to a little beyond the tail; the wings fall a quarter of an inch short of it.

This species is much smaller than *Ægialites vociferus*, and about a third bigger than *Æg. tricoloris*, but has a longer bill than either. In the black and white markings of the head and neck and tail, and in the shape of the last, these three species have much in common, but they differ so much in other respects that there is no chance of confounding them one with another.

Mr. Harting drew my attention to a species of Plover from India with the double pectoral band, which he thought at first might be the same as my Chinese species. He took the pains to search up all the references alluding to it, and has kindly permitted me to peruse them. The species is described by Latham (Ind. Ornith. ii. p. 750) as *Charadrius indicus*; and there is a specimen of it in the Leyden Museum from Nepaul. It turns out to be smaller and quite distinct from ours. A description of the Nepaulese specimen is given in the 'Mus. des Pays-Bas,' *Cursores*, p. 25.

## 2. *ÆGIALITES HIATICULA* (Linn.).

Père David had a specimen of the European Ringed Plover in full summer plumage in his museum at Peking. It had been procured in the neighbourhood of the Chinese capital. I have never met with it on the South-China coast.

## 3. *ÆGIALITES CURONICUS* (Gm.)\*.

*Ægialites minor* (Meyer).

\* This would appear to be the larger form of Little Sand-plover, or *Ægialites intermedius* (Ménétriés) = *Charadrius hiaticula* of Pallas. The smaller form, *Æg. minor* (Meyer) = *Ch. curonicus*, Beseke = *Ch. minutus*, Pallas, has not yet occurred in China, but is known from India, and has been met with in England.



This little Plover is a common winter visitant to all parts of the China coast. I procured it as far south as Hainan. In 1860 I found it breeding at Talién Bay; and lately I saw it in May up the Yangtze, in Szechuen. I have looked through my series, and find them all of one species, identical with birds shot in England. A specimen from India is also the same. Jerdon gives a smaller race, *Æg. minutus* (Pall.), as occurring also in India. This I have never seen in China.

#### 4. *ÆGIALITES CANTIANUS* (Lath.).

The true Kentish Plover comes down the Chinese coast in winter in great numbers; and I have a good series of them. They vary somewhat in the length of their bills; so I find does the home bird. I have one shot at Amoy in April, which is in full summer plumage and not to be distinguished from an English bird shot in May, kindly lent me by Mr. Harting for comparison. I have also skins from India sent me by Mr. Blyth. Amoy ♂: Bill in front .65 inch; wing 4.4; tarse 1.05. Bill black. Legs deep leaden-grey.

#### 5. *ÆGIALITES DEALBATUS*, sp. nov.

Under this name I propose to distinguish the form of Kentish Plover that is resident on the south coast of China, including Formosa and Hainan (see P. Z. S. 1863, p. 52).

Bill black, with an ochreous-yellow spot at base of lower mandible. Legs light yellowish brown or flesh-colour. In other respects like a washed-out *Æg. cantianus*.

♂. Bill .75 inch; wing 4.45; tarse 1.07.

The male in summer plumage always has the latero-pectoral patch more or less black, as also the band over the white forehead. The loreal streak sometimes shows in pale rufescent brown, sometimes in black spots, and is rarely entirely wanting. The crown has generally some rufescence; and a rufescent tinge often washes over the back.

The female in July has a slight rufescence on the head, and a rufescent brown breast-patch. She seldom acquires any of the dark markings of the male.

I procured five specimens of this resident race in Hainan in March, and they were all marked as in summer. In Amoy they generally lose the dark markings in winter.

I have hitherto merely marked this bird as a variety of the Kentish Plover; but as Cassin has separated a similar local form found in California and on the South-American coast, I think it as well to distinguish our bird. The bill and the legs afford the only reliable characters for discrimination. No one can doubt the fact of our local form being derived from *Æg. cantianus*, and that the influence of climate and other local causes have effected a change in the constitution of the bird. It affects to acquire the breeding-plumage of its progenitor, but its system is apparently too weak; yet it breeds and multiplies, and seems otherwise a healthy race. In some specimens of true *Æg. cantianus* I notice a paleness at the base of the

lower mandible, and also in some a paleness of the tarse, both of which by a little intensifying would produce the results characterizing our species. Judging from these, I should consider that it is not long since our southern residents separated from their northern brethren, and remained behind to colonize the coast of the south. If the separation be so recent, it is rather curious that the southern residents receive each winter the visits of their northern brethren without inducing any of the latter to abide with them, or without being induced themselves to return to the home of their forefathers. Want of strength to return to the north may have induced the first individuals to settle in the south; and their offspring may naturally have preferred to continue in their birthplace, in the warm climate they had been reared in.

For the sake of comparison with the above Chinese bird, I will add a notice on a specimen of *Æg. nivos*a (Cassin), ♂, from Peru in summer dress, from Mr. Harting's collection.

Bill in front '65 inch; wing 4; tarse 1. Bill and legs shorter and more slender than in *Æg. cantianus*. Wants the loreal black streak. Wings shorter. Has a washed-out appearance on the upper parts. Crown only tinged with chestnut. Legs paler. From *Æg. dealbatus* it differs in its much smaller bill, and shorter tarse and toes—but, like it, seems to be only a climatal race of *Æg. cantianus*, derived probably in a similar way.

*Ægialites niveifrons* (Cuv., Less. Tr. d'Ornith. p. 543) of South Africa appears to be another analogous derivative of the same main species.

I was at first under the impression that *Ægialites perronii* (Müller) of Java was another race of *Æg. cantianus*. But in this I am mistaken. Dr. Schlegel, of Leyden, has kindly supplied me with a specimen in the summer and another in the winter plumage, and I will here briefly note their peculiarities.

*Charadrius perronii*, Müller, Verhandl. Rather smaller than *Æg. minor*, with a thicker bill, longer tarse, and shorter wing.

*Summer plumage*.—Has a narrow black band over the white forehead. The loreal streak is black, but does not meet over the bill, nor does it stretch under the eye; ear-coverts black. The frontal black is not edged posteriorly with white; but there is a white line above the ear-coverts. The crown is pale chestnut-brown, as in *Æg. cantianus*, with a broad white nuchal collar, succeeded by a broad black band, which retains its breadth to the sides of the breast, but becomes very narrow across the breast. The back and wings are light brown tinged with rufous. The greater wing-coverts and secondary quills are edged with white; and the shafts of the primaries, with the tips of the inner ones, are white. The tail-coverts and the six central tail-feathers are blackish brown. The two outer tail-feathers are pure white; the third pale brown edged with white. The bill is black, with a spot of pale ochreous at the base of the lower mandible. The legs look as if they had been pale yellowish brown.

Length of adult male about 6 inches; wing 3·85; tail 2; bill in front '56; tarse 1; middle toe (claw '17) '75.



*Winter plumage.*—Light brown above, with a rufous tinge on the sides of the head. A narrow band of white runs across the forehead and over to the top of the eye; it then turns rufous, and so passes over the ear-coverts. The loreal streak is light reddish brown. The nuchal white ring is indistinctly indicated, being marked with light rufous, which is also the colour of the breast-patch, and runs faintly across the breast. The rest of the under parts are white; and the wings and the tail have the same markings as in the adult.

## Section II. *Red-breasted.*

### 6. *ÆGIALITES MONGOLUS* (Pall.).

*Charadrius mongolus*, Pall. Reise, iii. p. 700.

*Charadrius mongolicus*, Pall. Zoograph. ii. p. 136.

On the South-China coast this bird is a rare winter visitant; but in Hainan I found small parties of them on two occasions in March 1868, and procured two examples in winter dress. In May of the same year numbers of them were exposed in the market at Shanghai in summer plumage; I preserved one. The Hainan and the Shanghai birds agree, and are doubtless of the same species, and identical with the bird which Middendorff met with in large flocks on the 30th of June in the neighbourhood of the débouchement of the River Uda into the Sea of Ochotsk (see Midd. Reise, 1843-44, p. 211). Our bird answers well to his description and plate. He recognizes this species as distinct from *Ch. pyrrhothorax*, Temm., of Russia, and from *Ch. asiaticus (caspius)*, Pall., and adds (p. 212) that the longer tarse of the latter (39 millims.) makes it easily distinguishable in any dress from the *Æg. mongolicus*.

I will here give a description of my Hainan and Shanghai birds.

*Æg. mongolus* (Pall.). *Winter plumage.* Hainan. Upper parts light greyish brown. Loreal streak, ear-coverts, and latero-pectoral patch more or less marked with brown. A faint brown bar runs across the breast. Forehead, eyebrow, chin, throat, and under parts white. Wing hair-brown; lower edge of joint, broad margins and tips to greater coverts, margins to secondaries broadening inwardly, basal halves of outer webs of sixth and remaining primaries, first quill-shaft entirely, the others more or less, white. Upper tail-coverts: central feathers light brown margined with white, the side ones pure white. Tail: first or outer rectrix white, with an oblong longitudinal spot of pale brown on the inner web; second light brown, with white shaft and tip; the rest darker brown, with brown shafts and white tips, the white decreasing on the two centrals. Bill black. Legs deep blackish grey, claws black.

Length of wing 5·4 inches; tail 2·5; bill in front ·75; tarse 1·18; middle toe (claw ·17) ·85.

*In summer* (Shanghai specimen) the upper parts deepen in colour. A light rusty chestnut-colour marks the upper forehead, runs round the crown, and forms a broad nuchal collar extending across the breast and colouring the greater part thereof. The white of the

forehead is diminished in size and divided in its centre by a narrow black line; a black line runs across above the white over the eye to the ear-coverts, and another below the white above the bill to the eye, and under it over the ear-coverts. A little white occurs under the eye, and a little above it in the eyebrow, which is for the most part rufous.

#### 7. *ÆGIALITES GEOFFROYI* (Wagler).

This is not a rare bird on the South-China coast, where it appears early, departing late. It is also found on the shores of Formosa. Specimens from India and Java agree with the Chinese form. It can at once be told from the two above by its larger size, longer legs, and disproportionately big bill.

*Winter plumage* generally as in *Æg. mongolus*. *Tail*: first rectrix white, with a faint spot of brown on inner web towards tip; second white, with a light wash of brown along the middle of each web, deepening towards the tip, which is white; the rest all brown, with white tips, the two centrals having less white. The upper tail-coverts are of the colour of the back, but their side feathers are broadly fringed with white. The brown of the central rectrices is deeper than in *Æg. mongolus*.

Length of wing 5·75 inches; tail 2·5; bill ·93; tarse 1·5; middle toe (claw ·18) ·95.

Some of these were also in the Shanghai market in May in full summer plumage. The one I preserved is in coloration very similar to the nuptial dress of *Æg. mongolus*, but has the rusty chestnut-colour tinging the crown and all the upper parts. The black line that divides the white above the bill is a good deal broader than in my Shanghai specimen of *Æg. mongolus*.

#### 8. *ÆGIALITES VEREDUS* (Gould).

This finishes the series of this genus that have been found in China. It was originally described from Australia. In 1863 we discovered a specimen of it in the East-India Museum, from Java, registered by Dr. Horsfield as *Cursorius isabellinus*; and now Mr. Gould has it in summer dress from Shanghai (China). I have never met with it myself. I will close this paper by giving a description of the Shanghai specimen, which Mr. Gould has very kindly lent me for the purpose.

*Charadrius veredus*, Gould. *Summer plumage* (specimen from Shanghai, China). Forehead, throat, belly, and under tail-coverts white. A black rim to the front angle of the eye. Face and eyebrow white washed with light chestnut. Hind neck light chestnut, extending with a broad band of deeper colour across the breast, which darkens downwardly into a deep maroon, with a large black central spot on its lower edge. Crown and upper parts yellowish brown, the feathers on the former edged paler. Lesser wing-coverts, tertiaries, and upper tail-coverts of the same hue as the back, edged with light brownish chestnut. Greater coverts and secondaries light brown, margined at tips with white, the rest of the wing deeper



hair-brown; shaft of first primary white, of second only on apical half; shaft of the rest rich brown. *Tail*: first or outer rectrix white on the outer web and tip; second only on the tip, the rest of the feather being very pale brown; the remaining rectrices are darker-coloured and have ochreous tips.

Bill black. Legs apparently ochreous, with darker toes and black claws.

Length about  $9\frac{1}{2}$  inches; wing 6·25; tail 2·75; bill ·94; tarse 1·8.

This large species connects the red-breasted *Ægialitides* with *Eudromias*.

#### 4. On the Birds of Angola.—Part II.

By R. B. SHARPE, F.L.S. &c.

(Plate XIII.)

I have now the pleasure of bringing to the notice of the Society a second collection of birds from this locality, forwarded to me by Mr. Monteiro (*cf.* P. Z. S. 1869, p. 563). Most of the specimens are from Benguela, the southern province of Angola, a few being from the Rio Dande. The last-named locality is about halfway between Loanda and Ambriz, and, I believe, has never before been visited for the purposes of collecting. The whole of the present collection was purchased by Mr. Monteiro of Heer Sala, a Dutch naturalist now in Angola. The interesting notes usually added on the habits of the birds by Mr. Monteiro are therefore wanting; but a few particulars as to the colouring of the soft parts, irides, &c. are given on the labels and are recorded in the present paper.

The collection from Benguela appears to have been formed between the 30th of October and the 31st of December, 1868, at Kattenbella, and that from the Rio Dande between the end of January and the middle of July 1869.

I have, as before, referred to the papers on Angolan ornithology by Mr. Monteiro, Dr. Hartlaub, and Professor Barboza du Bocage; and a dagger (†) is attached to the species believed to be recorded from Angola for the first time.

*From Kattenbella.*

##### NECTARINIA GUTTURALIS.

*Nectarinia gutturalis* (Linn.); Sharpë, P. Z. S. 1869, p. 566.

Two males. December 8th and 10th, 1868. Eye black; bill and feet black.

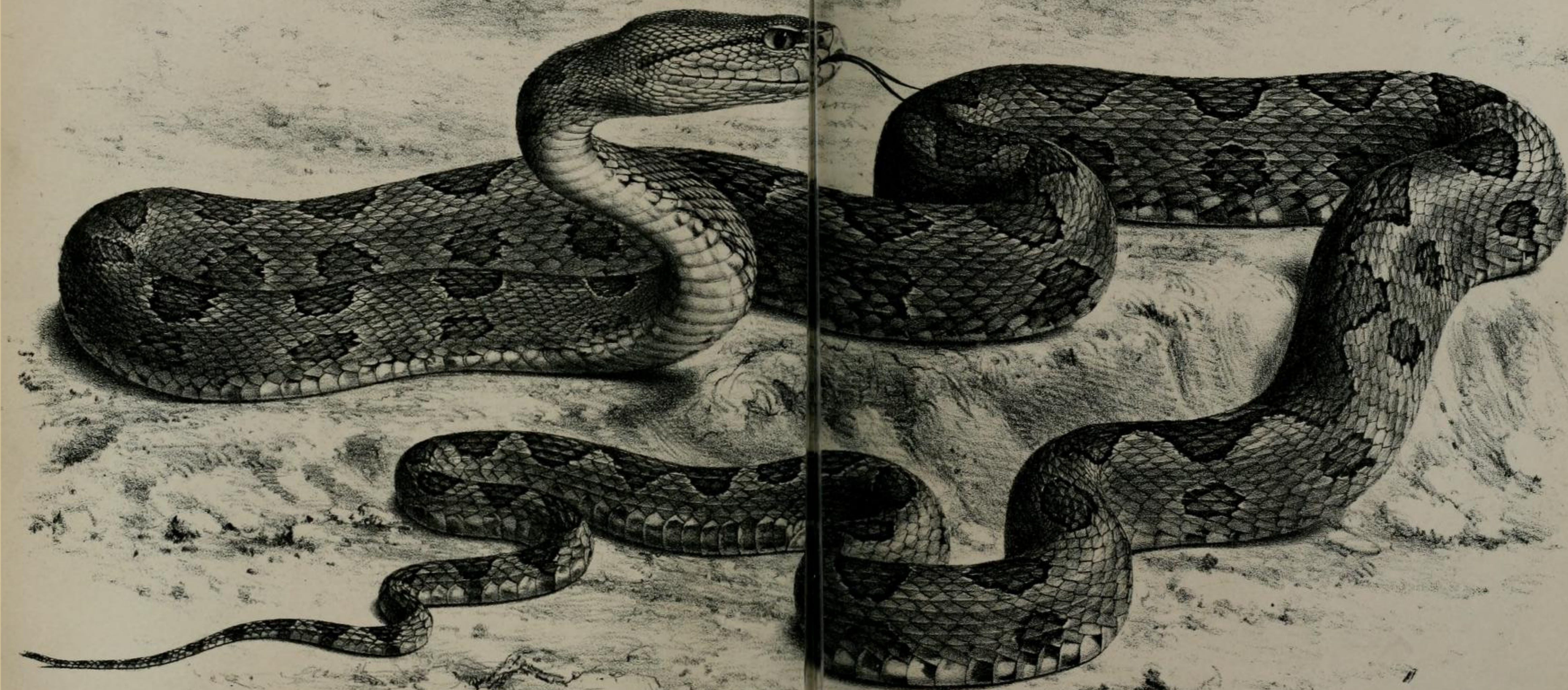
##### ÆDON PÆNA.

Male. December 31st, 1868. Eye black; bill and feet black.

I was at first inclined to consider this an undescribed species; but on comparing my bird, in company with Dr. Tristram, one of our







G. H. Ford.

W. West imp.

*Trimeresurus microsquamatus*.



9. PHASIANUS VERSICOLOR.

*Phasianus versicolor*, Temm. Plan. Col. 486 & 493.

*Hab.* Japan.

4. Note sur le jeune de l'année du *Pelecanus sharpei*.\*

Par. J. V. BARBOZA DU BOCAGE, F.M.Z.S. &c.

Teinte générale d'un brun-roussâtre foncé ou couleur chocolat, noirâtre sur la tête, d'un ton plus clair (roussâtre) sur le bas du dos, le roupion, le bas-ventre et les couvertures supérieures et inférieures de la queue; couvertures supérieures et inférieures des ailes d'un brun-noirâtre avec une large bordure roussâtre; remiges primaires presque noires; remiges secondaires et tertiaires ainsi que les plumes de la queue, d'un brun clair au milieu et d'un gris blanchâtre vers les bords; bec d'un jaune sale vers la base, d'un brun plus ou moins foncé dans le reste de son étendue; poche gutturale ainsi que les tarses d'un brun clair.

*Dimensions.* Longueur totale 1<sup>m</sup>.46, aile 0.68, bec 0.35, tarse 0.145.

*Habitat.* L'Afrique occidentale, Angola.

*Obs.* Degland décrit les jeunes de l'année du *P. onocrotalus* d'un cendre blanchâtre à la tête, au cou et en dessus du corps; d'un cendré foncé au dos, aux scapulaires et aux couvertures alaires, avec les bordures d'une teinte plus claire; remiges noirâtres; bec et partie nue de la gorge et des joues livides; pied brun-cendré; iris brun.

Mr. Elliot (P. Z. S. 1869, p. 579) dit ce qui suit:—

"The young during the first year are uniform greyish brown, the lanceolate feathers of the breast being entirely wanting."

5. Note on Reptiles and Batrachians collected in various parts of China. By R. SWINHOE.

(Plate XXXI.)

1. PLATYSTERNUM MEGACEPHALUM, Gray; Günth. Reptiles of Brit. Ind. p. 43.

I procured a single specimen of this curious tortoise in a bird-shop at Canton. It is brought down the West River from the western parts of Kwangtung Province and from Kwangse. As recorded, the head, limbs, and tail are not capable of retraction within the shell; the tail is protected by curling under the right margin of the carapace. I kept my specimen alive through the winter without food.

2. DERMATOCHelys CORIACEA (L.).

In the warm waters round Formosa the Green and the Tortoise-shell Turtles frequently occur; but these seldom show themselves in

\* See the description of this species *antèa*, p. 173.



the colder seas of the China coast. During the years I spent at Amoy I never heard of a Turtle being captured but once; this was in October 1859. It was a large old specimen of this species, of a yellowish madder-colour. I wanted to buy it to preserve; but nothing would induce the fishermen to sell it for this purpose. They said a Turtle never appears on the China coast except when some great calamity is imminent, and to avert this good men must deliver it from its captors and set it free. A Chinese firm in the town volunteered to do the good act. They purchased the Turtle, had Chinese characters cut on its back, signifying "set free for ever," which were filled in with vermilion, and, decking it with ribbons, took it in a boat in great state, with drums beating, to the outer limits of the harbour, where it was dropped into the sea. They said that if caught again the inscription on its back would protect it from meeting with further rough treatment.

The Turtle is with the Chinese an emblem of longevity.

### 3. *CROCODILUS*, sp.?

In February 1869 some Chinese were exhibiting in the native city of Shanghai what they called a Dragon, which they declared had been dug out of a hole in the province of Shense. It was a young Crocodile about 4 feet long, which they kept in tepid water. They made so much money by showing it that they refused to sell it. I cannot, of course, guess its species; but I nevertheless think the fact worth recording, as evidence that a species of this group does occur in China.

### 4. *TACHYDROMUS SEPTENTRIONALIS*, Günth. *l. c.* p. 70.

One specimen caught on the top of the city wall of Nanking. The Museum has specimens from Ningpo. It is a ground-Lizard, hiding under stones.

### 5. *EREMIAS ARGUS* (Peters).

Very common in the cultivated fields about Peking. The Museum has specimens procured by me in 1860; but mention of these was omitted when the Society was made acquainted with the specimens collected by me during the North-China campaign (see *P. Z. S.* 1861, p. 391).

### 6. *MABOUIA CHINENSIS* (Gray), Günth. *l. c.* p. 83.

Specimens from the Pescadores. Very common about the millet-fields of the largest Pescadore Island. A small race, and much spotted with black.

### 7. *EUMECES MODESTUS*, Günth. *l. c.* p. 87.

Found on the rocky bank of the Yangtsze river in a gorge in eastern Szechuen, 1300 miles from the sea. Before known only from Ningpo.



8. *GECKO JAPONICUS* (Dum. & Bibr.), Günth. *l. c.* p. 103.

From Chungkingfoo on the Yangtsze, in eastern Szechuen, 1459 miles from the sea. Found inside houses in the city, clinging to the walls, also on the trees in gardens. Delights in uttering its "chuck-chuck" note, especially in rainy weather. It is abundant in Taiwanfoo, Formosa.

9. *IAPALURA SWINHOEI*, Günth. *l. c.* p. 133.

This comb-backed Tree-lizard was before only known from the woods of South Formosa. On my late expedition up the Yangtsze I found it on the rocks among woods near Chungkingfoo. It must therefore have a wide range across China.

10. *ELAPHIS TENIURUS*, Cope; Günth. *l. c.* p. 242.

Captured at Shanghai. Has been procured before at Ningpo, in the Chikiang Province.

11. *TROPIDONOTUS QUINCUNCIATUS*, Russell; Günth. *l. c.* p. 260.

Dr. Günther says that this is the most widely distributed species of the Indian Water-snakes, extending from Mesopotamia to the south of China. My specimens are from Amoy.

12. *TROPIDONOTUS STOLATUS* (Linn.), Günth. *l. c.* p. 266.

From Amoy. This is by far the commonest Water-snake in Amoy and in Tamsuy (Formosa). In the latter place the country lads brought it to me by scores at a time.

13. *HYPsirrhina PLUMBEA* (Boie), Günth. *l. c.* p. 280.

From Amoy, where it is by no means common.

14. *HYPsirrhina ENHYDRIS*, Russell; Günth. *l. c.* p. 281.

Also procured at Amoy.

15. *HYPsirrhina CHINENSIS*, Gray; Günth. *l. c.* p. 283.

Captured at Ichang, 1111 miles up the Yangtsze river. The British Museum has specimens from China; but it is not known from what part of China.

16. *HYDROPHIS CYANOCINCTA*, Russell; Günth. *l. c.* p. 367.

This common Sea-snake is often floated into the small harbour of Takow, S.W. Formosa. My specimens are from there.

17. *TRIMERESURUS MUCROSQUAMATUS* (Cantor): Günth. *l. c.* p. 390. (Plate XXXI.)

From Formosa. Dr. Günther has made this out to be the species described by Cantor as *Trigonocephalus mucrosquamatus* (P. Z. S. 1839, p. 32), from Assam, from comparison of it with Cantor's drawing, the original specimen having been lost and no other since procured. Its occurrence in Formosa is somewhat singular. The two fine large specimens I have brought home were the only indi-



viduals I came across. One was brought to me from the interior; the other was captured at Takow, in the hall of a neighbouring Mandarin's office, having descended from the roof, in which it was lodged, by a rope on to a hanging lamp in pursuit of geckos (*Gecko japonicus*). It was tinted all over with blood-colour.

The specific characters of this snake, as kindly furnished to me by Dr. Günther, are:—

Scales in 25 rows, with a very strong keel to the tip, where it sometimes slightly projects. Ventral plates 217–220. Upperside of the head with very small granular scales; a series of larger ones along the canthus rostralis. Eleven upper labials, the second forming the anterior wall of the pit. Body brown, with a dorsal series of subrhombic, sometimes confluent spots; another series of similar more rounded spots along the lower part of the side. Each spot is of a dark brown colour, with a black margin, and generally a narrow white edge. Abdomen marked with brownish, each ventral shield having an ovate whitish spot on each side.

18. *TRIMERESURUS ERYTHRURUS* (Cantor), Günth. *l. c.* p. 386.

From Takow, Formosa. This is the first occurrence of this little green viper in Formosa. I have seen it frequently at Amoy; it is a bush-loving species, climbing to the top of plants, and coiling itself round the stems and leaves. Being of a fresh-green colour, it is not easy to detect; and while catching insects I have very narrowly escaped brushing my hand over the poisonous creature. The Chinese declare its bite to be fatal.

19. *HALYS BLOMHOFFII* (Boie), Günth. *l. c.* p. 393.

A specimen of this spotted brown Viper was brought on board the gunboat by some of the crew who had been on shore at Ichang, on the Yangtze. It is known from Japan and Formosa; but this is the first instance of its occurrence in China proper.

20. *RANA GRACILIS*, Wiegman; Günth. *l. c.* p. 409.

From Ichang. A common Frog in the rice-fields.

21. *RANA SILVATICA*, Leconte; Günth. *l. c.* p. 409.

From Ichang. Found in woods, among the dead leaves and decaying herbage.

22. *DIPLOPELMA PULCHRUM* (Hallowell); Günth. *l. c.* p. 417.

From Ichang. I have met this wee Frog in various parts of China and Formosa. During the rains of spring and midsummer it occurs in thousands about grassy places. It does not resort much to wet rice-fields.

23. *HYLORANA MACRODACTYLA*, Günth. *l. c.* p. 424.

From Ichang. Does not climb trees, but keeps much to the damp ground about woods.