



Keulemans lith.

M & N Harhart imp.

Fig. 1. MEGALÆMA FABER Fig 2. M. NUCHALIS.



by. We found a nest of four hard-set eggs on April 8th, and others containing young birds a fortnight later.

40. *ASIO OTUS* (L.). Long-eared Owl.

We shot one specimen on the mountains of Macedonia, and afterwards found the species breeding on a low island in the Danube, covered with a dense thicket of willows. The young were three parts grown on the 1st of May; so that nidification must have been begun before the ice broke up on the river.

41. *ASIO BRACHYOTUS* (L.). Short-eared Owl.

Breeds commonly in the Dobrudscha, where we obtained one or two nests, but did not find it anywhere else.

42. *SYRNIUM ALUCO* (L.). Tawny Owl.

This cannot be a common species, as we never saw or heard it; but Mr. Robson has obtained it more than once. In his collection was a perfectly black Owl which no doubt was a melanite variety of this species.

43. *STRIX FLAMMEA*, L. Barn-Owl.

Not observed by us, but included in Lord Lilford's list.

44. *NYCTEA TENGMALMI* (Gmel.). Tengmalm's Owl.

Said to have once occurred at Corfu (Ibis, 1860, p. 133).

[To be continued.]

V.—*On the Ornithology of Hainan.*

By ROBERT SWINHOE, F.Z.S. &c.

(Plate IV.)

AFTER my successful researches in the island of Formosa\*, I was determined, should an opportunity offer itself, to pay a visit to the island of Hainan. The opportunity came in the spring of 1868, when Her Majesty's Minister at Peking, being desirous to obtain information on the commercial capabilities of that island, with a view to opening a port in it for European trade, gave me instructions to repair thither in a gunboat to prosecute inquiries, the whole cruise not to extend over two

\* Cf. Ibis, 1860, pp. 186, 187, 359-361; 1863, pp. 198-219, 250-311, 377-435; 1864, pp. 361-370, 425-429.

months and a half. Apart from the investigations on behalf of the Government, I gained the Minister's permission to devote my leisure time during the trip to the study of the natural productions of the new country. Admiral Keppel detached the gunboat 'Algerine,' Lieutenant and Commander Domvile, for the duty; and Captain Holroyd, of H.M.'s 73rd regiment, accompanying us as the guest of the Commander, made a third to our party. In all our pleasure-trips on shore, Commander Domvile and Captain Holroyd always carried guns, and thus aided me considerably in procuring specimens of birds; and to them I owe my best thanks in the cause of science. The Admiral insisted upon our associating the pursuit of pirates with our more peaceful occupation of hunting for information; and this, though sometimes producing serious drawbacks to getting quiet conversation with the natives, yet afforded a diversion to the monotony of a sea voyage.

From any tolerable map of China my readers may learn where Hainan is situated, if they turn their eyes westward from Hongkong along the coast of the province of Kwangtung to where a peninsula runs southwards, dividing the China Sea from the Gulf of Tonquin. This is the peninsula of Luichow; and directly south of this, across a strait fifteen miles in width, stretches the large island of Hainan, covering two degrees of latitude ( $20^{\circ} 8'$  to  $17^{\circ} 52'$  N), and over two and a half degrees of longitude ( $108^{\circ} 32'$  to  $111^{\circ} 15'$  E). The island is of a somewhat oval shape, extends from north-east to south-west (its greatest length) about 160 miles, and has an average breadth of nearly 90 miles. Its area is about 1200 square miles, rather larger than the island of Formosa, and about two-thirds the size of Sicily. About a third of its north-eastern portion, together with broad tracts on its north-western and south-western sides, are flat, or gently undulating, with only a few eminences, the soil being composed of marine deposit, and poor in quality. The rest of the country consists of jungle-covered mountains, with rich valleys between them. The north-easterly portion is exposed to the influence of the winter monsoon, and enjoys cool weather during the China cold season, while the mountains of the interior, rising to an altitude of 7000 feet, debar the south

from the refreshing north-easters, and render it entirely tropical, and, according to the Chinese, very pestilential. In Hainan the visitor from China is specially struck with the abundance of the cocoanut tree (a tree not found in the latitude of Canton), which meets the eye on all points of the island coast. In spite of the winter monsoon, it flourishes best in the north-east corner of Hainan, in the district of Wênchang. Further in the interior, as the ground rises, the pine (*Pinus sinensis*) appears, and in some spots I noticed clumps of pine and topes of cocoanut growing side by side. We found the cocoanut also growing on the opposite shore of the Luichow peninsula, and on the small island of Naochow, off the right of the peninsula, in lat.  $20^{\circ} 45'$ . Higher than this we did not notice it. The mountainous interior of Hainan is inhabited by an independent race of people, who are called La, Lauy, or Le, according to dialectic difference of pronunciation in Chinese; and they are doubtless intimately connected with the Laos of Siam and Burmah and the Lolos of China.

We left Hongkong on the 29th January 1868, and anchored in the harbour of Hoeling island, in the Prefecture of Shao-king, at daylight on the 31st. The only birds I noticed here were *Passer montanus*, *Ixus sinensis*, *Turtur chinensis*, *Sterna melanauchen*, and a Kite.

Having engaged a pilot, we were away again next morning, and by the evening in the strait between Naochow island and Luichow peninsula, where the gunboat took the ground. This little accident gave us the whole of the following day for exploring Naochow. The land here is low and undulating, dotted with villages and farms in the midst of bamboos and banyans. The cocoanut tree is chiefly confined to the north-west corner of the island. The most notable bird we saw here was the Crane (*Grus cinerea*), which occurred in large flocks, and baffled all our attempts at close approach. The first bird I noticed and shot on landing was a race of the *Ixus sinensis*, with the whole crown black and no occipital white. We saw and procured several of these, but not one of the true Chinese bird. The next bird we secured was a veritable example of the European *Corvus corone*. There were two together, and we bagged



one of them. In Hainan, as will be seen further on, the ordinary big-billed black Crow, found from Canton to Peking—the *Corvus sinensis* of Gould—is the common species, and in the cities almost as familiar and domestic as the Sparrow. I am not aware that the European Corby has occurred in this part of the world before. The other birds we observed in our day's ramble were as follows:—*Gallinago scolopacina*, *Rhynchæa sinensis*, *Ardeola prasinoscelis*, *Egretta alba*, *Passer montanus*, *Turtur chinensis*, *T. humilis*, *T. gelastes*, *Ruticilla aureora*, *Pratincola indica*, *Lanius schach*, *Copsychus saularis*, *Orthotomus phyllorhaphæus*, *Reguloides superciliosus*, *R. proregulus*, *Zosterops simplex*, *Emberiza personata*, *Anthus richardi*, *Motacilla luzonensis*, *Pica sericea*, *Corvus torquatus*, *Halcyon pileatus*, *Acridotheres cristatellus*, *Buteo japonicus*, *Tinnunculus alaudarius*, a species of *Eudynamis*, and only one Kite.

On the 3rd of February, at daylight, we weighed, and anchored in the afternoon in the open harbour of Hoihow, the port of the city of Kiungchow, the capital of Hainan. Through the kindness of Messrs. D. B. Robertson and F. W. Mayers, Her Majesty's Consul and Vice-Consul at Canton, I had been provided with letters from the Viceroy of Kwangtung, recommending me to the care and attention of the Governor, the Prefect, and the military commanders of Hainan. These officers received us well, and exerted themselves to assist us in the objects of our expedition. Commander Domville was "death on" pirates; and news having arrived that pirate junks had been seen hovering about the neighbourhood, the Captain of Hoihow hired junks and arranged a joint cruise with the gunboat in chase of them. This gave me a chance of having a quiet trip into the interior; and on the 6th of February I left the gunboat just as she was starting, and put up for the night at the house of a Canton merchant. On the 7th I rode to the city of Kiungchow, about two miles and a half distant from Hoihow, and took up my quarters in a public office provided for me by the Taotai or Governor. The next seven days I spent in official duties, in rambling about the city and its neighbourhood, and in paying a visit to a French Roman-Catholic priest, who lived in Chinese style and costume, in a small village about ten miles

distant from the city. On the 14th, having induced the Governor to send a military officer with me, I started on a trip to the mountains. We embarked close to the city in a flat-bottomed boat with our chairs and bearers, and pushed up the river to Kewchow, where we landed, and travelled across country to Shuy-wei-sze, a trading-station between spurs of the mountain chain. From Shuy-wei-sze we made for Tai-ping-sze, right among the mountains, in the district of Ting-gan. This was a wonderful place for forest-birds, abounding in lofty trees, clear of jungle and undergrowth. From this I pushed up to Ling-mun (or "Gate of the Mountains"), a place of barter between the Chinese and the independent tribes; but here most of the timber had been cut away, and I found it of less interest for natural-history purposes than the woody spots on a lower level. The Lieutenant commanding at Tai-ping-sze accompanied me to Ling-mun and back. He was most assiduous in his attentions, following me about in my rambles among the woods with hot tea, cakes, and pipe, and a stool to sit upon! As the weather was fearfully hot in this mountain-locked neighbourhood, the mandarin's attentions were thankfully received. The authorities at both Shuy-wei-sze and Tai-ping-sze had received orders from the Taotai to receive me well; and on my arrival at each place the police were drawn up in double line at the entrance to the town, supported by large crowds of the people, and, as I was carried through in my travelling chair to the temple appointed for my reception, the police fell on one knee, a salute of three guns was fired, and the mandarins, in their ornamented official robes, presented themselves to welcome me in a travel-stained shooting turn-out with a gun on my shoulder. Their first idea of a British official must have been a strange one; but when I explained to them that I was as much interested in the wild animals of the island as in any other of its products, they did their best to aid me, though they never ceased to regard me as a queer customer, and could not to the last understand why I should trouble myself about birds and beasts, and to what use I could turn their skins. I am afraid they looked upon me as slightly wrong in the head. Nevertheless they did not cease their attentions, and gave me what information I sought. The



Lieutenant of Shuy-wei-sze did not leave me till he had handed me over to the authorities at Tai-ping-sze; and the fat good-natured Lieutenant of this last place clung to me till I returned to Kiungchow-foo in safety. On my return from the hills, I passed over a bleak plain to the city of Ting-gan. It was blowing cold from the north-east, drizzling with rain, and I was carried into the city in a benumbed state, so great was the change from the heat among the mountains during the previous few days. The chief authority or magistrate at the city of Ting-gan received me into his own house, and I spent a very pleasant evening with him and his secretary and literary friends. Next morning he provided me with a boat, and I returned to the capital, arriving there on the 1st March, my cruise in the interior having occupied a fortnight.

The gunboat was at anchor in Hoihow harbour; and we got away on the 4th March, and anchored outside the Poochin river the same evening. On the 6th we entered the Chinlan river on the west, in the Wênchang district, where we explored till the 8th. We then left and sailed down the coast. On the 9th, near the shore opposite Tychow island, the gunboat captured and burned a pirate junk, whose crew fired and threw overboard her guns and escaped to land. On the 10th we anchored off Lingshuy harbour, and spent a pleasant time in its neighbourhood till the afternoon of the 12th. We were informed that pirates were in watch for junks outside the harbour, and, creeping out, we sighted two of their vessels and gave chase. The pirates now tried to escape in a boat, but they were all, thirty-three in number, taken prisoners. The gunboat anchored with her captives in Yu-lin-kan bay. The shore here is mountainous, jungly, and inhabited by Le men, and the heat was great. We rambled about in this neighbourhood till the 14th, when we left at noon, and anchored at 4 P.M. under West Island. We had a morning stroll the next day over this pretty little island, colonized by Chinese fishermen, and lying about three miles from the wild-looking land opposite. The flat portion of the island was grassy in places, and in places planted with cotton, and protected from the winds by hedges of plants and trees. The hilly portion was covered with wood.

The birds observed here were *Alauda cælix*, *Anthus cervinus*, *Pipastes agilis*, *Heterornis sinensis*, *Centropus affinis*, *Turtur chinensis*, besides a new *Ixus* and a new *Arachnecetra*. On the pebbles of the beach we procured a solitary Grey-headed Wag-tail, *Budytes cinereocapillus*. I further noticed an Osprey, a Sea-Eagle, a Kestrel, and a Marsh-Harrier. The gunboat moved at noon, and at 4 P.M. anchored in the outer harbour of Nychow, and next morning the pirates were handed over to the authorities. We spent from the 15th to the 19th March in this glorious tropical region, visiting, feasting, and exploring, and on the 20th began again to steer northwards, passing along the west coast of Hainan. The 21st we spent at Tuntow, on the borders of the Kangên and Changhwa districts, part of the 22nd and the 23rd at Hoitow in Tanchow district, the 25th to 27th at Heongpoo, also in the Tanchow district, losing two days here on account of rainy and stormy weather. March 29th we explored at Haosuy in the Linkao district, and March 30th about Hungpe harbour, in the district of Chingmai. On the 31st, we were back again at Hoihow, whence, after exchanging civilities with the authorities, and finishing the details of our inquiries, we steered across, on the morning of the 3rd of April, to the mainland opposite—the peninsula of Luichow, and had a run on shore. The land beyond the beach is somewhat raised, and hedges and trees shelter the rice-fields behind. Here, to my astonishment, I found *Ixus sinensis*, the common Bulbul; but among them occasionally occurred the black-capped species of Hainan and Naochow. I also noted *Gallinula phœnicura*, *Prinia sonitans*, and *Phylloscopus fuscatus*. Along the beach southwards I shot a *Lobipes hyperboreus* as he sat floating about in a pool. Along the banks of a small creek that enters from the sea, we saw large numbers of *Totanus glottis* and *Hiaticula cantiana*, and a flight of Wagtails (*Motacilla ocularis*) settling for the night among the sands. The dirty weather compelled us to anchor again under Naochow island on the 5th of April, and, in spite of the wind and drizzle, I got a long stroll with my gun. We had already met the summer birds passing up the western coast of Hainan; but Naochow was full of migrants. I shot a female *Erythrosterna mugimaki* (T. & S.),



two females of *Pericrocotus cantonensis*, and a male *P. cinereus*, also a pair of *Xanthopygia narcissina*, and a male *Caprimulgus jotaka*. I further saw several times *Cyanoptila cyanomelana*. I got also a specimen of the Tailor-bird (*Orthotomus*), which is not uncommon in Naochow island, though I sought for it in vain in Hainan. Neither does it occur in Formosa, though common enough on the Chinese coast opposite. On the 6th we made the best of our way to Hongkong, touching at Macao.

With this sketch of my cruise, I will now proceed to give a list of the birds procured and noted, with descriptions of the novelties, and such details on their habits and habitats as my short time of observation admitted of my gathering.

#### 1. FALCO PEREGRINUS, Gmel.

On the 18th of February, on my way from the interior to Tinggan city, I saw what I believe was this Falcon on several occasions. It sat on the tops of grave-mounds. It was cold, and drizzling with rain, and I did not succeed in getting a shot at one.

#### 2. TINNUNCULUS ALAUDARIUS, G. R. Gray.

Observed often and in all parts of Hainan. I procured specimens both there and in the small island of Naochow, which do not appear to differ from European examples.

#### 3. ACCIPITER NISUS (Linn.).

I met only one of this species; and that was on the 20th of February, at Tai-ping-sze (Central Hainan).

#### 4. MICRONISUS BADIUS (Gmel.).

On the 19th of February, at Shuy-wei-sze (Central Hainan), whilst strolling about outside a wood, I saw a small Sparrow-Hawk seated quietly on the bough of a large tree. I wounded it, and, after a long chase, managed to secure it. I did not meet with the bird again. My prize was a fine adult male, and turns out to be this species. Mr. J. H. Gurney pronounced it to be so; and I have since compared it (kindly assisted by Mr. G. R. Gray) with specimens in the British Museum. This Sparrow-Hawk has not hitherto occurred within our Chinese limits.

5. *SPILORNIS RUTHERFORDI*, sp. n.

On the 19th of February, as we were journeying from Shuy-wei-sze (Central Hainan), my party made a halt at a wayside house adjoining a wood. I got out of my chair and wandered among the trees. I had not gone far when out bustled an Eagle from close over my head. I brought him down, and found that I had shot an immature *Spilornis*. The country from this place to Tai-ping-sze was one succession of fine timber-woods, consisting chiefly of large liquidambar-trees, or of various species of figs. Cultivated land occurred in patches between. I had got into the home of the Spotted Snake-Eagle. The next day I saw two or three of them soaring in circles high up in the air, and uttering a squeal-like scream. Such a falsetto note from so big a bird did not seem possible. The circles they described were not of great diameter. Presently one made a sudden stoop, and alighted on the top bough of a high tree. It showed no signs of alarm as I walked deliberately under the tree and shot it. I picked up an adult bird so much smaller than the birds I had obtained before at Formosa and Amoy, that I made sure that I had got *S. bido*. I shot two more adults that day with equal ease; and at the same place, on my way back, I got a fourth adult. I did not observe the bird in any other part of Hainan. Out of the stomachs of those I procured were taken bits of snakes and grasshoppers. Their irides were bright yellow, their cere and orbits deep yellow, and their legs and toes dingy ochreous-yellow, with black claws.

Mr. J. H. Gurney, on seeing a Hainan bird, said at once that it was distinct from *S. bido*, from its showing fine bars on the breast and under parts, which the Malayan species never has. He believed he had the same species from Siam, collected by the late M. Mouhot at a place in that country called Pachebouri. He sent to Norwich for the Siamese specimen and some others; and we compared them with my series of the Hainan race, and with others in my collection from Formosa, Amoy, the Himalayas, and Java. We made out the following measurements:—



Locality.	Tarsus.	Middle-toe, without claw.	Wing.	Species.
Himalaya .....	4.5	2.5	20.5	<i>Spilornis cheela</i> ♀
Amoy .....	4	2.5	20	" " ♂
" .....	4.5	2.3	20.5	" " ♀
Formosa (Feb. 1866) .....	4	2.25	18	" " ♂
" (Jan. 1866) .....	4.5	2.5	19.5	" " ♀
" (immature) .....	4	2.5	18.7	" "
Siam .....	3.5	2	17.75	New species.
Hainan. No. 1 .....	3.75	1.9	16.25	" "
" No. 2 .....	3.75	2.3	17	" "
" No. 3 .....	4	2.3	16.7	" "
" No. 4 .....	4.25	2.1	16.5	" "
" No. 5 (immature) .....	3.75	2	16.25	" "
Penang .....	3.3	1.75	15	<i>Spilornis bido</i> .
Java .....	3.25	2	15	" "
E. Java .....	3.75	2	16	" "
India .....	3.5	1.8	15.25	" "

The present new species may be distinguished at once from *S. cheela* by its smaller size and much less robust tarsi. In colour, its variable plumage seems to follow that of the Indian species. I have not succeeded in fixing on any constant characters in this respect by which to distinguish them. With *S. bido* (Horsf.) it agrees better in size, but is easily separable by its lighter under parts being more or less distinctly barred with fine zigzag lines of brown.

I have named this species in honour of His Excellency Sir Rutherford Alcock, K.C.B., Her Majesty's Minister at Peking, through whose kind influence I was selected for the exploring expedition to Hainan.

#### 6. PANDION HALIÆTUS (Linn.).

The Osprey was seen in many of the Hainan harbours. On the 15th of February, while being poled up the main river between Kiungchow and Ting-gan, the boatmen roused me from a doze and pointed to an Osprey hovering a long way over head. I tried a cartridge at him and brought him down. He was a male, in search for his afternoon meal.

#### 7. ? BLAGRUS LEUCOGASTER (Gmel.).

In the Lingshuy lagoon (S.E. Hainan), while shooting Swifts, a large Sea-Eagle flew over. I was on the point of

trying my luck at him when one of my comrades on the other side of the bank first snapped a cap, and then fired an unsuccessful shot at him. The bird increased the speed of his flight, shaking himself as he went along, and we thus lost the noble fellow. I saw another on the 15th of March taking long sweeping flights round a rock off West Island (S. Hainan), but there was no getting at him. It was a light-coloured bird, and more like the *B. leucogaster* than any other Sea-Eagle I know.

#### 8. BUTEO JAPONICUS, T. & S.

I first fell in with this bird on the island of Naochow. He was resting at noon, after a meal off *Passer montanus*, in one of the bushy trees of a small grove. My appearance disturbed him, and he flew across heavily, when I secured him. The irides were yellowish-brown, just tinged with green, the cere and legs orange-yellow. This was on the 2nd of February, and the Buzzard was probably there, as at Amoy and Hongkong, a winter visitant. I afterwards saw the species on the 11th of March at Lingsuy (S.E. Hainan) and on the 25th of March at Heongpoo (W. Hainan).

#### 9. ? POLIORNIS POLIOGENYS (T. & S.).

At Lingmun (Central Hainan) I saw a small Buzzard-like bird, which escaped wounded over a hedge. I took it to be this species, but, as I cannot be sure, I mark it with a query. The *Poliornis* is also a migrant on the China coast, and may possibly pay winter-visits to Hainan.

#### 10. CIRCUS SPILONOTUS, Kaup.

There were several of this Harrier squatting about a large grassy plain, on the 15th of February, near the city of Ting-gan. I could not get near enough to them to have a shot. I observed it also over the paddy-fields near the capital.

#### 11. CIRCUS ÆRUGINOSUS (Linn.).

I saw the Marsh-Harrier about the fenny shores of Hoihow harbour (N. Hainan); and up the river, near Ting-gan city, on the 15th of February, I winged a female with the help of a cartridge.

12. *CIRCUS CYANEUS* (Linn.).

Seen on the plain at Lingsuy, between the lagoon and the city.

13. *MILVUS GOVINDA*, Sykes.

There was something in the manner and appearance of the Kite, which was abundant everywhere in Hainan, that struck me as different from the China species. I took the following note from a fresh-shot male:—" *Iris bright chestnut. Cere yellow; gape bluish-white. Bill brownish-black towards tip; inside of mouth bluish. Feet pale bluish-grey, lightly tinged with yellow; claws ink-black. Length nearly 24 inches; wing 17·8; tail 12 inches. From tip of wing to tip of tail 1 inch.*"

The Chinese bird has the iris *hazel-ochre*, and has but the slightest touch of yellow on the cere (*cf.* Ibis, 1867, p. 410). Dr. Jerdon unfortunately does not give the colour of the iris and cere in *M. govinda* of India. The Hainan Kite may be identical with the Indian bird, while the Chinese race seems to hold a place intermediate between *M. govinda* and *M. melanotis* of Japan, the specimens from Peking being larger and more affine to the latter.

14. *EPHIALTES LETTIA* (Hodgs.).

While shooting Squirrels among a clump of trees and bushes on a slope under the north wall of the capital, just before dusk, at the report of my gun out bounced a small Owl, and perched on a partly exposed bough, raising his horns to the utmost, and uttering a harsh cat-like cry, of a nature likely to alarm one at night. On shooting it, I found it to be one of the *lempiji* group of Owls with dark iris. I met no more of the species.

"♂. Bill pale yellowish horn-colour. Iris deep brown. Feet light greyish-brown. No white about the face as in *E. semi-torques* (T. & S.) of Japan and China.

"Length 9·25; wing 6·2; tail 3·4; tip of wing to tip of tail ·6."

I took the above note from the fresh bird. It answers best to the *E. lettia* of Hodgson, with which Messrs. Wallace and Blyth have identified my specimen.

15. *NINOX JAPONICUS* (T. & S.).

This is the only other Owl we came across in Hainan. On the 29th March, at Haosuy (N.W. Hainan), we disturbed a pair



in a grove by the side of a village, and, after much chasing, bagged them both. On the 2nd April I roused another in some market gardens not far from the capital. The birds procured are of the Chinese race, and, I should say, were on their migration up the China coast. They had the unsettled movements of fresh arrivals, and were associated with many little wanderers that, like this species, find a summer home in more northerly latitudes.

16. *CAPRIMULGUS JOTAKA*, Temm. & Schleg.

On the 19th March, on the wild jungly shore of Nychow harbour, I observed several Goatsuckers perching about the sands. It was too dark to aim straight, and I did not succeed in securing a specimen; I was therefore unable to determine to what species they belonged. Later, however, on our homeward voyage, I came across the Japanese bird. It was on the 15th April, on the island of Naochow. The specimen shot was a male, which I disturbed just before dark from among some bushes. He was evidently a migrant bound up the China coast, and took to the banyan trees, perching lengthwise on the thick branches. In a small collection of birds made, by Dr. Anderson of the Calcutta Museum, on the western borders of the province of Yunnan, from the Burmese side, which Mr. Blandford lately showed me, was a specimen of this Nightjar. I suspect that it is to the eastern foot of the mountain ranges that divide Burmah and the Laos country from China that most of our summer birds retire during winter.

17. *CYPSELUS PACIFICUS*, Lath.

“*C. vittatus*, Jard. & Selb.,” of my former lists.

On the occasion mentioned above, in Nychow harbour, I noticed a large gathering of this Swift flying overhead, and screeching before dropping to roost among the rocks. I secured a specimen.

18. *CYPSELUS SUBFURCATUS*, Blyth, J. A. S. B. xviii. p. 807.

In the flock of the species mentioned previously I recognized several of these. I also saw some at Kiung-chow city on the 1st of March, during a storm.

19. *CYPSELUS TINUS*, sp. n.

Above deep sepia-brown, with a slight deep green iridescence, rump lighter, beneath much brighter. Wing and tail brownish-black, the former with pale inner edges. Between the bill and eye a whitish spot. Bill and legs blackish-brown, with a pink tinge. Iris deep hazel.

Length about 4.5; wing 4.75; first quill attenuating to the tip, and .25 in. shorter than the second; tail 2.25, middle rectrices .875 shorter than the laterals.

The female is a trifle shorter in the wing, but is otherwise similar to the male.

This species is of the same typical form as *C. batassiensis*, Gray, of India and Burmah, but is smaller, more deeply coloured, with a shorter and narrower bill, longer wings, and less forked tail. It appears to be a good second species of the Palm-Swift type, which connects *Cypselus* with *Collocalia*.

I first noticed this little species at Tai-ping-sze (Central Hainan), where a single pair passed over my head, and I shot one. Among the cocoanut-trees, on the sand-banks of the Lingshuy lagoon (S.E. Hainan), they were common enough, and we procured several. It was the 10th of March, but there did not appear any signs of nidification. On the 18th of March at Nychow (S. Hainan) I again saw numbers of them flying backwards and forwards over a wood near the city.

20. ? *ACANTHYLIS CAUDACUTA* (Lath.).

A Chinese work on the island of Hainan, in its list of birds, mentions a large species of Swallow, "as big as a Dove"\*; which

\* "There are two kinds of Swallows in Hainan—the 'Yuë' [*Hirundo gutturalis*] and the 'Hoo' [*H. dawrica*]. There is also a Sea-Swallow as big as a Dove, that comes each spring to nestle in the rocky cliffs, dangerous precipices with piles of spinous grasses. The natives wait till the birds' autumnal departure, and then, by means of a shovel at the end of a long pole, collect the nests for sale. They are termed 'Sea-Swallows' nests,' and are now also procured from the overhanging cliffs and inaccessible crevices of the islands of Nychow and Wanchow. They are more excellent than the 'Birds' nests' bought from foreign vessels; but, as the year's produce only consists of a few pounds, they are extremely difficult to obtain."—*Kiung-shan-Heen Che* (An Account, Historical and Statistical, of the Kiungshan District of Hainan.)

makes its nest in the caves of certain small islands off the southerly coast of Hainan. It adds that, in autumn, when the birds desert their nests, the nests are collected and sold for food, and that epicures esteem them much more highly than those imported from the Straits of Malacca. The builders of such nests must surely be this large Spine-tailed Swift. We passed close to some of these islands, but looked in vain for the birds. They had not yet returned to their breeding-places. None of the nests were to be purchased in the various markets we visited in Hainan towns; but out of a pirate the gunboat captured, off Lingshuy, we took a parcel of rather large gelatinous nests, which possibly were collected from the neighbouring island rocks; but we could procure no satisfactory evidence to show that they were. I therefore was forced, with much reluctance, to abandon the determination of this interesting question to the next adventurer who has the good fortune to go over my ground.

21. ?*MEROPS PHILIPPENSIS*, Linn.

A friend of mine, who visited the Chunlan river in the Wen-chang district (N.E. Hainan) later in the season, on a former pirate-hunting expedition, tells me that he observed a large party of green-coloured birds, which he took to belong to a species of Parrot (!), going in and out of holes in the sand-banks of this river. The Philippine Bee-eater is the only species of this genus that has been observed in China, one specimen having been obtained out of a small number some years ago at Swatow; and I refer the Hainan bird, therefore, with a query, to this species. I did not meet with the bird myself.

22. *UPUPA CEYLONENSIS*, Reichenb. *U. nigripennis*, Gould.

In Hainan we saw not our European friend *U. epops*, which occurs in tolerable abundance, from Canton to Peking, on the China coast; but here the richer-coloured "Bird of the Le matrons," as the Chinese of the island name it—the *U. ceylonensis* of Southern India and Burmah—took its place. I found it common everywhere, as common about the orchards and gardens beneath the walls of Kiungchow as in the forests of the interior or the tangled jungles of the south. It is a tame, in-offensive bird, and as much a favourite with the Hainan



Chinese as the allied *U. epops* is an object of dislike to their Amoy brethren. When disturbed while feeding on the ground, it flies up to the nearest tree, and expands its crest, bowing each time. Its note is similar to that of the northern species, but, I think, distinguishable, being hoarser and not so sharp.

I made the following note on some specimens shot at Kiungchow:—"♂. Length 11·25; wing 5·3; tail 4·125; wing-tip to end of tail 2·25. Bill from forehead 2·4. Tertiaries ·25 shorter than wing-tip. Iris very deep brown. Bill deep brown for more than two-thirds of its length, pale brownish white tinged with ochre at its base. Legs greyish-brown. The female has a shorter bill than the male, and is smaller. Two females measure:—Bill 1·9 and 2·1; wing 5 and 5·25; tail 3·5 and 3·875." The proportions vary in both sexes, and the bills vary also in curvature. Four of my specimens have no white spots on the first primary; but one male has it as distinct as in *U. epops*. Hence the lack of the white wing-spot cannot be regarded as a constant distinguishing character. The absence of white at the base of the black crest-tips is a far better mark for instant discrimination. The white tail-band is very variable in breadth; and so, indeed, are all the markings. The tibial feathers are of the colour of the breast, and not whitish as in *U. epops*.

Mr. G. R. Gray was so kind as to allow me to examine the specimens of Indian Hoopoes in the British Museum. One of the skins there was a red bird like ours, with similar crest, but with the white wing-spot like my single specimen mentioned above. Another was like *U. epops* in the crest and other respects, but had no white wing-spot. This satisfactorily proves that the absence or presence of the wing-spot is no constant character in either *U. ceylonensis* or *U. epops*.

I observed no Hoopoe in the island of Naochow.

### 23. *ALCEDO BENGALENSIS*, Gmel.

Common in all the open country wherever water occurred.

### 24. *CERYLE RUDIS* (Linn.).

Seen about all the rivers and lagoons throughout Hainan.

## 25. HALCYON SMYRNENSIS (Linn.).

The only bird I saw of this species was at Haosuy (N.W. Hainan), in a grove adjoining a village.

26. HALCYON PILEATUS (Bodd.) ; *Alcedo atricapilla*, Gmel.

Only observed in Hainan, at the same place as the last-named. I saw three in the small island of Naochow, and procured one.

27. PALÆORNIS JAVANICA (Osbeck). = *P. Lathamii* (Latham)

I fully expected that the "Sugar-cane-bird" of the Hainanese, the only Parrot in Hainan, would turn out to be a new species. But no, my specimens are identical with examples sent from India by Mr. Blyth. I have four fine adult birds from Hainan:—

	Length of wing.	of tail.
♂ (A.)	6.6	7
♂ (B.)	6.5	8.25
♂ (C.)	6.5	7.25
♀	6.5	7

"A" is of a deeper red on the breast than the other two males, which have a plum-coloured bloom over that part, with verditer-blue tips to the green feathers that succeed. In "B" and "C" there is more blue in the colour of the head, and on the two middle tail-feathers. In both sexes the lower mandible is black, in the female the upper as well. The red of the belly in the female skin extends less downwards, and has a chestnut wash. In the skin of another female, which I kept alive for some time, the colour of that part is light purplish, tinged with bluish-grey. In both the French-grey of the crown is of a livelier hue of blue, with less tint of purple than in the males. In my male specimen "A," which I take to be the oldest, the quills are much yellower than in the others. My two Indian birds show much more uniformity in coloration, and their pectoral red extends much lower down on to the belly. In the Hainan specimens, the variation seems to be individual, and I do not think it due to age.

Dr. Jerdon (B. Ind. i. p. 263) gives the wing of this species as 7 inches in length, and the tail 10, adding that the female acquires a red bill when fully adult. The Chinese in Hainan, who are fond of keeping this Parrakeet and teaching it to

speak, regard the black-billed and the red-billed birds as distinct. On several occasions I saw them in shops in the towns, either perched on their triangular frame-cages, to which they were chained, or walking about freely over the counter. The iris of the bird is white, its legs whitish-grey.

I cannot say that this species is common in Hainan; for I sought for it without success, and did not even see it until I got to Tai-ping-sze. Here, on my halt when journeying inwards, I noticed a small party flying at a height overhead. On my rest at the same place coming back, I suddenly came on a tolerably large number of them feeding on the wild berries of a hedge. I fired and secured two red-bills and a black-bill, which, on dissection, turned out to be males and female as I had expected. The rest were off so quick on the other side of the hedge that I did not see them again. On shore, at Haosuy harbour (N.W. Hainan), I saw the only other example of this bird. It was a male, and made such a noise talking to himself that he attracted my attention. He was sitting all alone on the bough of a tree near a village.

#### 28. PICUS MANDARINUS, Gould.

This Woodpecker only occurred to us on the jingly shore of Yulinkan Bay (S. Hainan), which, though offering the finest harbour in the island, is entirely deserted by the Chinese. A few Le aborigines were met on shore, who brought water and cut wood for us, in exchange for some old clothes taken out of the pirate junks. The jungle on the hills, right to the beach, was, in many places, impenetrable without a knife; and many a good bird I lost from the impossibility of getting to it. Every savage here carries a large knife, in a pitcher-shaped basket fastened to the back of his waist, and with the knife he clears his way through the strong rattan and other tangles that cross the woods at every height. For a supply of cigars I induced a savage to guide me about on a ramble, but, curiously enough, he took little interest in the shooting, and was no hand at retrieving. I had at last to give him up in despair. In a plantation enclosed by a wooden stockade to keep out wild beasts, I met the Commander of the gunboat. He had knocked down a



Woodpecker, which was lying on its back screaming, and showing fight with beak and claws. It was a female, with the iris white as usual. Length of wing 5 inches, of tail 3·2. On comparing the skin with my series from China, I find no marks which I can deem constant whereby to distinguish it. It has narrower black tail-bands than a bird from Canton, and in this respect approaches a Peking bird. It has a shorter wing than the Canton and Peking birds, which agree in this particular. But a Foochow bird here steps in with longer wings than the Canton and Peking specimens, and with tail-bands intermediate in breadth, while another Foochow bird has the bands fully as broad as in the Canton bird. The white spots on the wing are also variable. Our Hainan bird is apparently fully adult; for its under parts are of a clear cream-colour, and the crimson spot on the breast is very well defined.

29. *PICUS KALEENSIS*, Swinhoe, Ibis, 1863, p. 390.

The first bird that greeted me on my first ramble, on a damp morning, at Shuy-wei-sze (Central Hainan) was a little Spark-headed Woodpecker, perched on a high withered branch, uttering the same sharp note as its Formosa and Peking relatives. I met it frequently afterwards wherever timber-trees occurred, and procured four specimens. In size and general coloration my Hainan skins agree with Formosan; but the black streaks on the breast, in three of the four, are much narrower, though in the fourth they very nearly tally with those of the Formosan bird. The spots on the wing and bands on the tail vary in size in both races. The two races are more closely allied to each other than either is to the *P. scintilliceps* of Peking.

30. *MICROPTERNUS HOLROYDI*, sp. n.

A demon-like laugh startled me as I broke into a woody glade at Tai-ping-sze (Central Hainan), and turning round I spied that the author of this noise was a Bay Woodpecker clinging low down to the trunk of a tree. In those charming woods of fine old trees, between the mountain-spurs in the heart of the island, this Woodpecker was frequently heard and seen; but nearer the coast I did not fall in with it again. Its nearest ally is *M. fokiensis*, from Foochow (China), from which

it is distinguishable by its shorter wings and tail, and by the differences about the head, throat, and neck. The dark spots on the throat are wanting, or merely indicated by light yellowish-brown edging to the dull chestnut-brown feathers, while the elongated feathers of the head and hind neck are brown, with light yellowish-brown margins. The head and neck of *M. fokiensis* are lighter, with central black markings, deep chestnut-brown in the immature bird. I have five specimens of the Hainan race, which I have compared with five of *M. fokiensis* from Foochow and Tingchow; but so variable are the birds of this group, that I would scarcely attempt to separate them, were it not for the uniform shortness of the wings and tail in the Hainan bird. Both these races are readily separable from *M. brachyurus* (Vieill.), of Sumatra, *M. badius* (Horsf.), of Malacca, *M. badiusus* (Temm.), of Borneo, and *M. phaeiceps* (Blyth), from Pegu, of all of which I have authentic examples, received from Prof. Schlegel and Mr. Blyth; and, from Dr. Jerdon's description (B. Ind. i. p. 294), no comparison is needed of mine with his *M. gularis* of Malabar.

♂ Length of wing 4·4, of tail 2·75.  
 ♀       "       "       4·7,       "       2·8.

Irides ochreous-white. Bill deep bluish-grey, with the greater part of the lower mandible, and edge of the upper, greenish-yellow. Legs and claws slate-colour, tinged with green.

I have named this species in honour of Captain Holroyd, of H.M.'s 73rd regiment, who accompanied us on the Hainan expedition, and gave me great assistance in collecting specimens.

### 31. MEGALÆMA FABER, sp. n. (Plate IV. fig. 1.)

Like Formosa, Hainan has also its peculiar species of Barbet; and from the almost identical colouring of the under parts, and the similarity of build and stature in the two birds, one must necessarily come to the conclusion that the one has been derived from the other, or that both are of common lineage. From its loud peculiar call, the Hainan species has earned among the natives of the island the appellation of "Ironsmith," whence I have derived its specific name\*. Among the woods of the in-

\* "The 'Ironsmith,' so called because its voice sounds like hammering the metal."—*Kiung-shan-Heen Che.*

terior I often saw this bird, either singly or in small parties. It is a stupid heavy species, keeping much to the upper boughs of umbrageous trees, especially those of the fig-group, of which there are a good many kinds in Hainan. It sits silent among the leaves munching the figs, and you may be under a tree a long time without knowing that a party of Barbets are overhead, except from the constant falling of berries. On staring up into the tree, it was often difficult to make them out, on account of their resemblance in colour to the foliage. When roused, they hop clumsily from twig to twig, sometimes giving utterance to a short faint note. In flying, they hold the head with the heavy bill well up, the body and tail inclining downwards, while the wings keep on a continued fluttering, and propel the bird in a straight direction.

Under parts as in *M. nuchalis*, Gould, of Formosa—that is, with a golden throat, a blue band below it, succeeded by a vermilion spot, with the rest fine grass-green—differing, however, in having purple intermingled in the blue band. On the crown it differs entirely from that species. Frontal feathers, to past the line of the eyes, with stiff shafts, black, faintly shaded with bluish-green; occipitals broadly tipped with deep crimson, a spot of the same colour occurring on each side of the bill in front of the eye. Ear-coverts cobalt-blue, tipped with yellowish-green. Under the eye to bill black. A little cobalt-blue fringes the red of the occiput. The rest of the plumage as in *M. nuchalis*, but without the dorsal red spot. Bill rather longer and larger than in that species. Irides deep reddish-brown. Legs leaden-grey, with a green tinge.

Length about 7·75; wing 4·3; tail 2·6, of ten slightly graduated feathers.

The accompanying plate (Plate IV.) represents (fig. 1) this new bird, as well as (fig. 2) the head of the allied species from Formosa.

[To be continued.]

## VI.—Notes on the Birds of the Island of St. Helena.

By JOHN CHARLES MELLISS.

THE feathered portion of the St.-Helenian fauna can scarcely be said to be so interesting from a scientific point of view as







J.G. Keulemans. del.

M. & N. Harhart. imp.

Fig 1. HEMIXUS CASTANONOTUS. Fig 2. HYPSSIPETES PERNIGER.



XVII. *On the Ornithology of Hainan\**.

By ROBERT SWINHOE, F.Z.S. &amp;c.

(Plate IX.)

[Continued from p. 97.]

## 32. CUCULUS — ?

I saw no true Cuckoo in Hainan, except on two occasions. On the 10th of March in Lingshuy lagoon (S.E. Hainan), out of a hedge enclosing some fields, I startled a rather large specimen in the hepatic plumage. I followed it from tree to tree unsuccessfully. It uttered no note, and was probably only a straggling migrant. Again on the 21st of March, in Paklai Bay (W. Hainan), I saw a similar straggler. In such a difficult group as this it would be preposterous to offer a guess as to the species seen.

## 33. POLYPHASIA TENUIROSTRIS (Gray).

In the first fortnight of February, I saw this little Cuckoo several times in the neighbourhood of Kiungechow city, and shot two males. On the 1st of March I procured a male in the barred-rufous or hepatic plumage. The bird had not yet commenced laying, and was silent. The two typically-coloured males measured the same—wing 4.6, tail 5. The rufous bird—wing 4.375, tail 4.875. This is the same species that comes in summer to Amoy and its neighbourhood to breed. There I have often obtained full-plumaged rufous birds of both sexes, and less frequently normal-plumaged specimens patched with barred-rufous. The latter I have also seen from Calcutta. Birds in this peculiar plumage, brighter and more intensified in the male, creep about the bushes in silence and appear to keep aloof from others. I have not known them sing or court the other sex, and I do not think they breed. They wear their rufous dress throughout the summer; and it strikes me that their inability to assume the mature coat is due to weakness or some sexual defect.

\* In the first part of this paper (p. 93), *Palaemonis javanica* (Osbeck) should give place to *P. lathamii*, Finsch (Papageien, ii. p. 66).

34. *EUDYNAMIS MALAYANA*, Cab. & Heine.

On Naochow island (2nd February) I saw a couple of Koels only, and did not shoot either. They seemed unsettled visitors. In all the cultivated parts of Hainan where bamboos grew and trees abounded, alike in town and country, in fact where Crows and Mynahs found a home among men, the Koel was abundant. In the jungles of the south they did not show themselves; but on the undulating land of the west they were as common as in the north and east. They always appeared restless throughout February and March, chattering and flying in an agitated manner from tree to tree, uttering their dreadfully noisy notes from morning to night, and sometimes for the greater part of the night, especially when there was moonlight. My previous acquaintance with the Koel I have already described in 'The Ibis' (1861, p. 46). It was in the city of Canton, in the beginning of May 1860, when this bird had arrived and was in full note and engaged in courting. Higher up the China coast I have only observed it as a rare and occasional straggler. On first meeting the bird at Hainan, I was naturally under the impression that it was on its passage to its breeding-quarters in the south of China; but I soon found that at this early time of year (February) each bird was in the height of amatory excitement. I then began to think that it was possible that the Koel, not being confined to any locality by the cares of nidification, was paying his gallant attentions to the fair of his species that he found on the northward journey, who followed as soon as they got some kind Crow or Mynah to adopt the "little stranger," to continue the same game with fresh sweethearts in their summer home. But fortunately, bad as are the morals of the Cuckoo-group in their promiscuous love, I found my surmises as to this wholesale abandonment of their children was incorrect. For, judging by a comparison of their skins, the Hainan Koel is of a different race from the Koel that visits Canton; and on reflection I cannot help thinking that its loud call-note is not quite the same.

The Canton Koel looks very much like the race that frequents Southern India and Ceylon, while the Hainan Koel, by its larger bill and larger wings, agrees with the *E. malayana*, Cab. & Heine,



of the Himalayas, Java, &c. (*cf.* Ibis, 1869, p. 340). I will here give a list of measurements of my birds, together with those of three Himalayan specimens received from Dr. Squire:—

*Males.*

		Wing.		Tail.
Hainan	{	adult	8·6	8·125.
		”	8·25	8·625.
		”	8·75	
		”	8·5	
Himalaya	{	immature	8·1	7·875.
		adult	7·875	7·875.
		”	8	7·875.
Canton		”	8·1	7·875.
Canton		”	7·5	7·5.
Swatow		spotted	7·6	7·875.

*Females.*

Hainan	{	adult	8·25	7·875.
		”	8·418	
		”	8·375	
Canton	{	melanoid	8·125	7·5.
		adult	7·5	7·5.

Lord Walden showed me a male Koel from Java, which agrees with the Hainan bird; but a male specimen from Manilla, kindly lent me by Mr. Gould, has a shorter and deeper bill. The males of the Hainan and Canton Koels are similar in colour; but my single Canton female is much brighter than the Hainan ones. The plumage of female Koels, however, follows no constant rule: one of my four from Hainan has the throat and breast closely banded with black, the bars fusing into one another; the under parts much more narrowly waved with black than ordinarily; the streaks on the head reduced almost to lines; and the spots on the upper parts small and indistinct, with scarcely any green gloss on the brown ground-colour. Had this specimen been the only one procured, I should have felt no hesitation in considering the Hainan Koel a species quite distinct from the Canton bird. But as it is, we learn that the Hainan bird is a distinct larger-billed race, and is not the Koel that summers in Canton. The winter-quarters of the latter will probably lie more directly westward of Canton. I think we

may safely infer that the large-billed race resides permanently in Hainan, as I procured a fledged young one early in February, which was being tendered by its fosterparents (*Acridotheres philippensis*), which were feeding it; but from the higher branches of the same tree, I put out and shot a female Koel: whether she was in any way connected with the young bird it is impossible to say. The egg that produced so old a chick must have been laid in the beginning of January. The fledgling was not in the normally immature or female plumage, but in the white-spotted black dress which I had hitherto taken to be the halfway to maturity of the male, having before received a similarly coloured full-grown specimen from Swatow. An examination of males with immature feathers about them shows that as a rule they, in the young state, resemble the female, and moult at once into the black plumage. What, then, means this melanoid plumage that some young males begin life with?

The full-grown melanoid bird from Swatow has the upper parts and breast deep bronzed-black, with many white spots on the forehead, and a few on the back of the neck and on the back, and broad white tips to the scapulars, coverts, and quills; tail with numerous rufescent bars towards the tip of the rectrices; rump and tail-coverts browner, with many rufescent bars; belly and under wing less bronzed, with abundant bars of white.

The Hainan fledgling is blacker still than the Swatow bird, with only a few light yellowish-brown spots on the scapulars and wings, and a very few spots and bars on the under parts. The bills of both are blackish, that of the Swatow bird light on the under mandible.

That both the large-billed race of Hainan and the smaller-billed bird of South China should have this occasional melanoid plumage in the young male shows a close consanguinity between the two, and confirms me in my belief that they cannot be regarded as more than races of the same species. From Lord Walden's paper above cited, we learn that the oldest name for the South-China Koel is *E. maculatus* (Gmel.) = *E. chinensis*, Cab. & Heine.

In the 'Kiung-shan-Heen Che,' the Koel is called the *Koo-gö*,

or "wicked mother-in-law." "Big as a Magpie," it says; "colour pure black, eye crimson as blood. It is named after the sound of its voice, which is extremely mournful. Loo-hwang has the following couplet:—

"The sage that hears the Koo-go's voice,  
Must expect his wife's spirits to fail."

"Imitate its notes, and it will sing with increased energy. It lays in the Magpie's nest, and leaves the Magpie to hatch and rear the young."

### 35. ZANCILOSTOMUS TRISTIS (Lesson).

On the afternoon of the 18th of February, at Shuy-wei-sze (Central Hainan), while walking up a lane to a village, I noticed some Magpies teasing a long-tailed bird in an overhanging banyan-tree. It uttered no cry, but flew quietly to a hedge, where I shot it. It was a female of this species, with dark eyes and pink-red skin round them. It agrees with a fine male skin I have from India, but is smaller in size, as one might expect in a female, and has a somewhat smaller bill.

Hainan ♀. Wing 5·875; tail 12·75.  
India ♂. „ 6·4; „ 16·75.

On the jungly hills of Lingshuy (S.E. Hainan) and Nychow (S. Hainan), I saw them on several occasions skipping up from the tangled brush on to the more open branches of the higher trees, and whisking about their long tails like the *Urocisse*. I shot one or two; but it was mere waste of life, as I did not succeed in recovering the birds. In the more open country near Nychow city, while riding with the General's Aide-de-camp to visit a hot spring, we put up a beauty, with a tail fully as long as in the Indian male. It flew silently along the hedge, and then, slipping into it, threaded its way to the other side and thence escaped.

### 36. CENTROPUS RUFIPENNIS (Illiger).

Called in Hainan the *Ho-kee* or "Fire-fowl," a name usually applied in China to the domestic Turkey. Among the bamboo-copses and gardens around Kiungchow-foo, and all other towns in Hainan, the Crow-Pheasant was abundant, and one could

never go for a walk without both hearing and seeing it. I have three adults, and one in immature plumage, from the neighbourhood of the capital city, and an adult male from the south. They measure:—

S. Hainan.	adult	♂.	Wing	7·75;	tail	10·25.
N. Hainan	}	♂.	8	;	11·5.	
		♀.	8·75;		11·5.	
		♀.	8·75;		12·25.	
		immature.	8	;	10	

The adult specimens are dull-coloured, and lack, on the breast especially, the fine deep bluish-purple of the continental bird; but this colour is not constant in my series from different parts, and appears to fade, and often to change to bronze. My immature bird is in the second stage of plumage, which I have not seen before in this species.

Head and hind neck deep dusky olive-brown, the stems of most of the feathers being pale yellowish-brown. Wings and upper back chestnut, washed on the tertials and tips of the quills with brown; two or three of the secondaries banded with blackish-brown. Lower back, tail-coverts, and two middle rectrices deep greenish-brown, barred with dull yellowish-brown, the others deep brownish-green, with only a few indistinct bars near their bases. Throat and breast light yellowish-brown mottled with brown, the feathers having whitish stems. Belly and flanks dusky blackish, barred closely and obscurely with light dingy yellowish-brown.

This second plumage the bird does not, according to Dr. Jerdon (B. Ind. i. p. 349), always acquire on its progress to maturity, sometimes jumping from the first to the adult form. *C. rufipennis* has not fallen much under my observation. But *C. viridis*, which has been the prevailing species at places where I have been mostly stationed, I think I can state with certainty, as a rule, undergoes the three changes.

### 37. CENTROPUS VIRIDIS (Scop.).

In the outskirts of the jungle at Lingshuy (S.E. Hainan) I saw several of this small Crow-Pheasant, and on West Island (S. Hainan) I obtained a specimen. It was in the second phase of plumage.



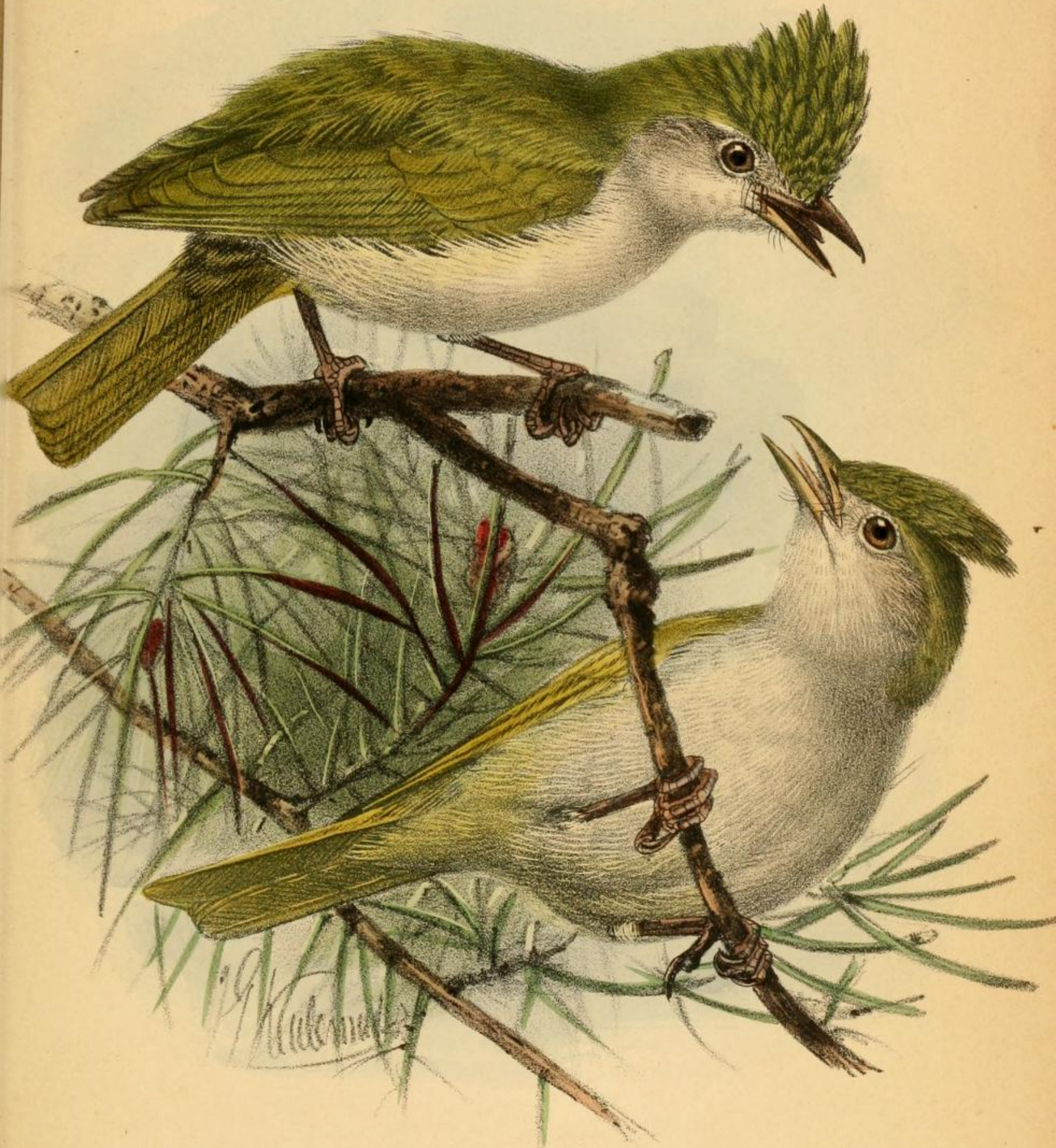
38. *ÆTHOPYGA CHRISTINÆ*, Swinh., Ann. & Mag. N. H. 4th ser. iv. p. 436 : Walden, *suprà*, p. 36, Pl. I. fig. 1.

On the 18th of February, at Shuy-wei-sze (Central Hainan), I fired at a dark-looking Sun-bird, moving rapidly about the twigs of a tree, and picked up this lovely species. The same place rewarded me on my return visit with a second specimen. I only saw it once again; and that was on the 23rd of February, near Lingmun, my furthest point among the mountains of the interior. We were away over the hills on a visit to a Le tribe, who were cultivating a few small patches of ground by a stream on a hill-slope. Their dirty huts were few in number, gathered together on a terrace about a majestic wild fig-tree. In rear and by the side of the huts were a few bushes and smaller trees. On an exposed branch of one of the latter, a little *Æthopyga* stood forth, and, contrary to the usual saying that birds of beauty have no voice, delivered a charming little short song, which it repeated at intervals. I sought in vain for the female. I did not meet with the species again in Hainan.

I repeat with some alterations my description of the male :—Crown of the head and back of the neck deep purplish black, with dark green and coppery reflections. Sides of the face and neck and the back the same, without reflections. Throat and breast rich maroon-red, the former flanked along the *maxilla* with a line of dark roundish feathers shot with steel-blue, green, and purple. Scapulars rich brownish-olive, the same colour tinging the black of the back, and becoming greener as it broadly edges the wing-coverts and secondary quills. Feathers of the wing hair-brown, the primaries only slightly edged with olive. Rump canary-yellow. Upper tail-coverts, two central tail-feathers, and outer edge (more or less) of all but the outer feather glossy metallic dark green; underpart of central rectrices, and the main portions of all the others black, the three outer ones being tipped with white, increasing in extent to the outer feather. Below the maroon, the breast is crossed by a band of olive-green, fading into the dingy yellowish-white of the underparts. Axillaries white, with a primrose wash; inner edges to quills creamy-white. Tail of twelve graduated feathers, the two middle ones with elongated tips. Bill blackish brown, paler on the







J. C. Keulemans lith

M & N. Harhart imp

*run +* HERPHORIS TYRANNULUS.



## XXIV.—On the Ornithology of Hainan.

By ROBERT SWINHOE, F.Z.S. &amp;c.\*

(Plate X.)

[Concluded from p. 256.]

77? *ORIOLOUS CHINENSIS*, Linn.

I introduce this Oriole into my list on the authority of Père Michel Chagot, the French priest, who resides at Lingshanshe, near the capital city. To this gentleman, Monsgr. Guillemain, the French bishop at Canton, had given me a letter of introduction. I found him in Chinese queue and costume, living in a wretched hovel, part of a small farm-house in a poor village about ten miles from Kiungchowfoo. He had been seven years in the island without leaving it, and had the cure of the western division of the north of the island, while another Frenchman had charge of the eastern division. The two met once in three months. The mission once had chapels in the city; but they had long since been seized; and the priests driven away. M. Chagot did his best to be hospitable; but I must confess that notwithstanding all his efforts, his board and his quarters showed small cheer. The life of a priest in Hainan is not an enviable one. After thus introducing my informant I will tell what he told me about the Oriole. He said that in the summer one of their commonest birds was a yellow bird about the size of a Thrush. This, I should think, was pretty certain to be the species that summers in China. We did not leave Hainan till the 4th of April; and up to that date there were no signs of the Oriole.

78. *PSAROPHOLUS ARDENS*, Swinhoe (Ibis, 1862, p. 363, pl. xiii.), *var. NIGELLICAUDA*.

\* I find I have wrongly referred (*suprà*, p. 88) the small horned Owl of Hainan to *Ephialtes lettia* (Hodgs.). It is more nearly related to *E. griseus*, Jerd., from which, however, it differs in its proportions, by its much longer tarsus and longer toes, its much deeper and richer colouring, the want of the white spot on the underneck, and in having its tarsal feathers reddish brown barred and mottled with dark brown. I will distinguish it as *E. UMBRATILIS*.



On the 20th February, at Taipingsze (Central Hainan), I spied a solitary male Red Oriole, and, after much chasing from one wood to another, at last secured it. On taking it into my hand, from its blackened tail I thought I had got a new species. Its iris was yellowish cream-colour. A few days later, on my return to the same place, I was attracted by a bird singing to himself in loud broken notes, hidden in a forked branch of a high tree. I watched till I could see him, and brought down a young male. I saw a second red male in the jungle at Yulin-kan (South Hainan).

My specimens are shorter in the wing and longer in the tail than the Formosan bird; and in the full-plumaged bird the black of the neck appears to extend less far down the breast.

Adult male. Length of wing, 5·7; tail, of 12 slightly graduated feathers, 4·125. Plumage as in *P. ardens* of Formosa, except as regards the tail, which, instead of being entirely crimson, has black shafts to the feathers, the two middle ones being washed with black, and the rest with their outer webs for the most part black.

Young male. Length of wing, 5·6; tail, 4·125. Head and tibiæ blackish brown. Back brownish-red; scapulars, wings, sides of breast and belly, and axillaries brown. Throat, breast, and belly white, with long blackish-brown spots. Rump, vent, and a new feather or two on the breast crimson. Tail pale crimson; the two middle feathers entirely washed with brown, the rest only on their outer webs; shafts of feathers black.

I have a more advanced male from Formosa, with a black head and crimson back, but still retaining the spots of the under parts, in which the tail is more blackened than in the young Hainan specimen. But all the Formosan birds in as mature plumage as the Hainan adult have purely crimson tails. In the Formosan bird the black disappears, in the Hainan bird it intensifies, with age. •

#### 79. *COPSYCHUS SAULARIS* (Linn.).

Common about villages in the flat open country of North and Western Hainan. My specimens agree with the bird that is found throughout China south of the Yangtsze, and with skins

from India. A skin from Java, sent me by Dr. Schlegel, and marked *C. saularis*, with *C. mindanensis* as a synonym, is about the same size, but has stronger legs and feet, and dusky tibiae, with black axillaries. Another, from Mr. Blyth, from Malacca, marked *C. mindanensis*, is close to our bird in proportions, but has the black feathers of the axillaries fringed with white, whilst in *C. saularis* they are pure white. Considering that the true *C. saularis* extends from India to China unchanged, it strikes me that both the Malacca and Java forms may claim specific distinction. A Hainan male measures—wing 4 inches, tail 3·75; a female—wing 3·7, tail 3·635.

80. *CITTACINCLA MACRURA* (Gmel.), *var. MINOR*.

In the woods of Central Hainan, and in the jungles of the south, "*Shamas*" were often seen and heard, chasing one another about and singing defiantly. There was much sweetness and variety in their song. In habits *Cittacincla* bears the same relation to a *Copsychus* that a Nightingale does to a Redbreast. I have three males from Hainan; they agree with a bird from the Tenasserim sent by Mr. Blyth, but are much smaller than the typical Indian bird. They are in length about 9·5 in., wing 3·5, longest tail of the three skins 5·8. A Javan specimen from Dr. Schlegel is of the size of our bird, but has a much longer and broader tail. The "*Shama*" is called in the 'Gazetteer' "*Pih-shay*" or "*Hundred Tongues*":—"It begins to sing in spring; it can roll its tongue in imitation of the sounds of a hundred birds."

81. *PRATICOLA INDICA*, Blyth.

Seen about the fields near Kiungchow city early in February.

82. *RUTICILLA AUREORA* (Pall.).

About the gardens of the capital city in February.

83? *CALAMOHERPE FUMIGATA*, Swinhoe, P. Z. S. 1863, p. 293.

On the 27th February, on my journey outward, I ran into a wood at the foot of a hill, and was attracted at once by the sweet song of some Warbler hidden in the bushes. I watched awhile for him. He flew out and perched for a second on the

stump of a tree, stooping and throwing up his tail. In another second he was away, and I lost him. He looked very Nightingale-like, and more like this species than any other I am acquainted with.

84. CALAMOHERPE CANTURIANS (Swinhoe, Ibis, 1860, p. 52).

85. CALAMOHERPE MINUTA (Swinhoe, Ibis, 1860, p. 52).

Both these were frequently seen and heard in February about the gardens and villages near Kiungchowfoo.

86. PRINIA SONITANS, Swinhoe, Ibis, 1860, p. 50.

Seen about the gardens at Kiungchow city, and at Nychow (S. Hainan). It also occurred in the Luichow Peninsula.

87. DRYMÆCA EXTENSICAUDA, Swinhoe, Ibis, 1860, p. 50.

Common amongst the tall grasses. My single specimen is similar to some of the Amoy ones.

I got the Tailor-bird (*Orthotomus phyllorhaphus*) in Naochow Island, but never saw or heard it in Hainan.

88. CISTICOLA SCHÆNICOLA, Bonap.

Occurred on the grassy hills. I have two specimens.

89. PHYLLOPNEUSTE FUSCATA (Blyth).

Often met with in Hainan. I also saw it in the Luichow Peninsula.

90. PHYLLOPNEUSTE PLUMBEITARSUS (Swinhoe, Ibis, 1861, p. 330).

Willow-Wrens were often seen on the west coast of Hainan towards the end of March. Both my specimens are of this species.

91. REGULOIDES SUPERCILIOSUS (Gm.).

Common in February. I brought away one specimen.

92. REGULOIDES PROREGULUS (Pall.).

I saw a few in the gardens about the capital city in February.

93. MOTACILLA FRANCISI, Swinhoe, P. Z. S., 24 Feb. 1870.

I shot two Wagtails in Hainan similar to our ordinary white-faced Chinese Wagtail, but with black on the ear-coverts. The birds were not fully developed, and I should have had

merely to note the peculiarity and pass on; but more recently, in my trip to Szechuen, I procured a male in full summer plumage of evidently the same species. I give a note of its characters:—Length of wing 3·55 in., of tail 3·7, of tarsus ·93. General colour the same as in *M. felix*. Its main difference lies in the black being more advanced towards the forehead in 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, remaining white. The face is marked much as in the second figure of the Grey-backed *M. personata*, in Mr. Gould's 'Birds of Asia.' The older Hainan bird has a long white blotch of white on the inner web of the third outer rectrix, which is wanting in the younger and in the Szechuen bird. I believe the Szechuen and the Hainan birds to be of the same species.

94. *MOTACILLA OCULARIS*, Swinhoe, P. Z. S. 1863, p. 275.

This Grey-backed Pied Wagtail, which occurs in China from Canton to Peking, appears also to be tolerably common in Hainan. I have three skins from that island.

95. *CALOBATES BOARULA* (Temm.).

Not common. I shot one specimen.

96. *BUDYTES TAIVANUS*; *B. flavus* (L.), var. *rayi*, Swinhoe, Ibis, 1863.

I shot two out of a party of Yellow Wagtails at Heongpoo (W. Hainan) on the 26th of March. They are assuming the yellow under dress, their heads are still dull olive tinged with green, with the yellow eyebrow distinctly marked. They are the same as the Formosan bird, which I have sometimes procured at Amoy. This species is to be distinguished from *B. rayi* by its dark olive lores and ear-coverts, and duller plumage.

97. *BUDYTES CINEREOCAPILLUS*, Savi.

This I shot on West Island (S. Hainan) on the 15th March, in full summer plumage. Head deep grey, with a black line from rictus to ear-coverts; a small white spot in front of the eye; chin and base of lower mandible white, underparts fine



bright yellow. I have a specimen from Amoy, and another from Tientsin.

98. *PIPASTES AGILIS* (Sykes).

Frequents groves. I found it at most of the places we visited. I presume it is only a winter visitant here, as in Southern China.

99. *CORYDALLA RICHARDI* (Vieill.).

Common. I have two, which are moulting into a rich ochreous plumage, and seem to be the smaller race referred to by me in my "Catalogue of the Birds of China" (P. Z. S. 1863, pp. 272, 273).

100. ? *CORYDALLA RUFULA* (Vieill.).

On the banks of the Kiungchow River I saw with the former a smaller and more active species, of the same colour. This I take to have been *C. rufula*; but, unfortunately, I could not spare time to procure a specimen.

101. *ANTHUS CERVINUS* (Pall.).

Often met with in small parties. On the 23d of February I got one in winter plumage, and on the 26th of March I shot two, the first with the face only rufous, the second in nearly full summer-dress, the underparts being pinkish fawn-colour, with only a few streaks on the flanks.

102. *HERPORNIS TYRANNULUS*, sp. nov. (Plate X.)

In Central Hainan I noticed this remarkable little bird on several occasions. They went about the high trees of the forest in small parties, very lively in their movements, and hanging about the twigs in all attitudes, hunting for insects just like Titmice, raising their crests the while, fighting with one another, and uttering loud querulous notes. In death they look *Ixine*, but in life they are decidedly *Parine*. I have two specimens from Hainan which agree with Formosan examples. They closely resemble *H. xantholeuca*, Hodgs., of Nepal, but differ in having the green of the upper parts tinged with a brighter yellow, and in the bill being smaller. Upper parts yellowish olive-green, brighter on the back and rump. Coronal feathers long and broad, with blackish shafts. Lore, circle of eye, cheeks, sides of neck, and underparts light brownish-grey,

whiter on the throat and belly. Feathers of the wing hair-brown, margined with yellowish-green, yellower on the quills. Tail greenish-yellow, washed lightly with brown and with thin brown shafts. Carpal edge of wing white. Axillaries, under edges to remiges and rectrices, and vent sulphur-yellow.

Length about 4·5 in., wing 2·6, tail (of 12 mucronate feathers) 1·8, bill from front ·46, tarsus ·57.

*Herpornis* seems to me to connect *Zosterops* with *Liothrix*.

103. *ZOSTEROPS SIMPLEX*, Swinhoe, P.Z.S., 1862, p. 317.

I met the White-eye in all parts of Hainan, and procured several examples, which do not differ from the South-China bird. The most striking distinction between this and the *Z. palpebrosus* (Temm.) of India is in the latter being larger and having the green of the upper parts much yellower.

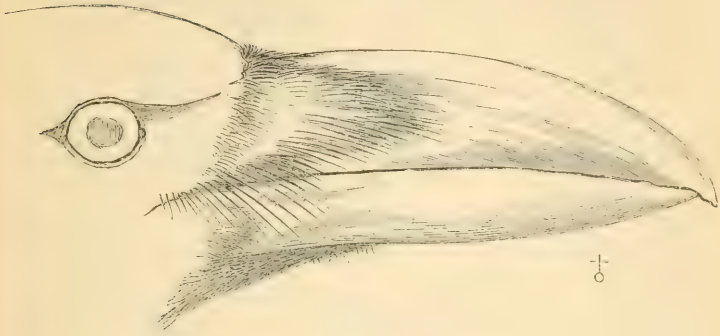
104. *PARUS CINEREUS*, Vieill.

The only Titmouse observed by me in Hainan. I have three skins which seem to agree to a feather with a specimen from India given to me by Mr. Blyth. The Chinese bird, as I have before noticed (Ibis, 1868, pp. 63, 64), is intermediate to the Indian and Japanese species.

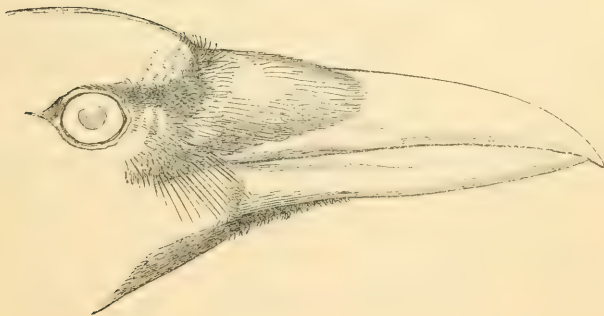
105. *CORVUS SINENSIS*, Gould.

On Naochow island we saw five Crows. All had small bills; and the one we shot and brought home has turned out to be *C. corone* of Europe. I was therefore not a little surprised to find the common and familiar Crow of Hainan to be a large-billed species. Mr. Tristram determined the Naochow bird and called my attention to an Andaman Crow sent me by Mr. Blyth. The Andaman Crow, however, I find to be of the *C. culminatus* group. *C. corone* did not occur in Hainan. The bill in the Hainan race attains a maximum size, and the wings and tail are longer; but all these vary in my specimens from Swatow, Foochow, Ningpo, and Peking. The Formosa bird, however, has the large bill of the Hainan race, with shorter wings. This I have separated as *Corvus colonorum* (Ibis, 1864, p. 427). I have the *C. japonensis*, Bp., from Hakodadi and Amoorland. It has a strongly curved and differently shaped bill, and is a larger bird.

*Corvus sinensis.*



*Corvus corone* ♀ ex Naochow.





*Corvus sinensis.*

Hainan.	♂.	Bill from gape	3,	depth	1·1	; wing	14·25	; tail	9·25
"	♂.	"	3	"	1·1	"	14·25	"	9·6
"	♀.	"	2·6	"	·9	"	13·8	"	8·5
"	♀.	"	2·8	"	·9	"	13·5	"	8·8
Swatow.	♂.	"	2·65	"	·95	"	13·25	"	9
"	♀.	"	2·5	"	·92	"	12·6	"	9
Ningpo.	♀.	"	2·45	"	·85	"	12·	"	8·25
Peking.	♀.	"	2·5	"	·9	"	13·1	"	8·75

*Corvus corone.*

Naochow.	♀.	"	2·25	"	·7	"	12·6	"	7·4
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The Hainan Crow is nearly as common and familiar in Kiungchow and other towns of the island as *C. splendens* is in Calcutta. They collect about the housetops, fighting and cawing, and drop into the courtyards, often even entering houses, picking up offal or any thing that takes their fancy. They roam about the neighbouring fields in large parties, and crowd together on the trees. The natives do not molest them; and this may account for their boldness, as in China the Black Crow prefers retired places in woods and hills, and rather shrinks from the presence of man. They appear to breed late in Hainan. About the middle of February we noticed them carrying about sticks for building-materials. From their peculiar habits I took the Hainan bird to be distinct from the China Crow; but I find nothing in their skins to justify separation. Its cry may be syllabled "Ah-ah! Kao-kao!" the latter uttered in a hoarse voice.

106. *CORVUS TORQUATUS*, Less.

In the plains of the north and north-west of Hainan this bird frequently occurs. I shot three specimens, which do not differ from Amoy examples. Their plumage is much abraded and discoloured from their nesting-duties, and it is evident they are as early breeders in Hainan as in South China.

Du Halde, in his 'Description de la Chine,' (*loc. cit.*) gives this species. He says, "several curious birds are also found there, such as Crows with a white cravat," &c.

107. *PICA MEDIA*, Blyth.

The Magpie was everywhere abundant in Hainan, following

the Chinese colonist and gladdening his heart with its lively movements and auspicious notes. It was breeding in February; and we frequently saw its nest, often placed in the basket-shaped cross-trees of the poles that stand in front of mandarin offices, and once, as I noticed in the preamble that heads this paper, in the heart of the leaf-crown that tops the cocoa-nut tree. According to the Chinese 'Gazetteer' of Hainan, the Magpie was introduced into Hainan A.D. 1450-56, from the Chinese main. It says, "'Tcheo,' commonly called the 'Bird of rejoicing.' Hainan was originally without this bird. In the King-tai reign of the Ming dynasty, Admiral Le-yih brought from Haipih [north of the sea, applied to Leen-chow-foo, at the head of the Gulf of Tonquin] ten or so males and females and let them loose. These having bred freely, the bird has become extremely numerous." The two examples I procured in Naochow island are bright and very similar to the Amoy bird, but have the white on their quills more extended towards their tips, but not so much as in the Peking bird. My two Hainan specimens have the white much as in Amoy skins. They are dull-coloured; but they were shot later in the season, and are worn from nidification.

Hainan.	♂.	Wing	7.25;	tail	9;	tarsus	2.08
"	♂.	"	7.7	"	9.25	"	2.08
Naochow.	♂.	"	7.7	"	9.25	"	1.85
"	♀.	"	8.6	"	10.5	"	2.25
Amoy.	♀.	"	8	"	9.75	"	1.85
Peking.	♀.	"	8.25	"	9.7	"	1.9

#### 108. DENDROCITTA SINENSIS (Lath.).

On the 17th of February, on my way to Shuy-wei-sze (Central Hainan), a pair of these flew on to a tree by the wayside. I was out of my chair in a second, and secured one: "iris deep chestnut." Among the fine woods of Shuy-wei-sze they were not uncommon, going about in small parties. On one occasion I was attracted by a noise as of Jays quarrelling. I peered about to see what it was, and found a male of this species. He was standing on a twig close to his mate, and, leaning towards her, kept uttering the horrid barking noise that disturbed me. The mate was evidently love-stricken; for, by her quiet and attentive demeanour, she seemed enchanted with his music.

I have five specimens; and comparing these with two from the Province of Fokien (Tingchow Mountains) the Hainan race appears to be smaller, and browner, with the grey of the hind neck mixed with brown. The size of the small white wing-patch is somewhat variable. The Formosan race is distinct and is easily recognized by its larger size, and by the ashy grey on the basal half of the rectrices. This I have separated as *Dendrocitta sinensis*, var. *formosæ* (Ibis, 1863, p. 387). The Himalayan bird is the largest of all, and constitutes the *D. himalayensis*, Blyth (Ibis, 1865, p. 45).

I add the comparative measurements of the Hainan and Chinese birds.

Hainan.	Wing	5·2;	tail	7·1
„	„	4·9	„	6·5
„	„	4·9	„	6
Tingchow.	„	5·4	„	7·6
„	„	5·3	„	6·7

109. ACRIDOTHERES PHILIPPENSIS (Temm.), Bp., Consp. Av. i. p. 420. (Ibis, 1867, p. 387).

Differs in no respect from the bird (*A. cristatellus* of my former lists) that ranges from Canton to Shanghai. It was abundant about all towns and villages visited in Hainan.

Du Halde (*l. c.*) mentions this bird among the productions of Hainan, “Starlings which carry on their beak a small *lunette*.”

110. TEMENUCHUS SINENSIS (Gmel.).

We first met this summer Starling on the 6th of March, on the Chinlan river (N.E. Hainan). On the 13th March, at Yu-lin-kan it occurred in large flocks; and after that, all the way round to Kiungchow-foo, they were often seen. I judge from this that they do not spend their winter in this island, but visit it in spring, passing onwards to summer in south China, some probably remaining during the warm season.

111. STURNUS CINERACEUS, T. & S.

These were often observed in small parties during February. Later in the spring we did not find them. They only occur in South China during the winter.

112. EULABES HAINANUS, sp. nov.

I frequently saw Grackles in cages in the towns of Hainan,



and was assured that they were indigenous to the island, but I searched in vain for the bird in its wild state. I took a caged specimen to Hongkong and compared it with the species sold in the shops there, which, as the Chinese report, comes from South-western China (Western Kwangtung, Kwangse, and so forth). The Chinese race has never been described, and we may for convenience' sake designate it

*EULABES SINENSIS.*

It is smaller than *E. intermedius* (A. Hay) of Tennasserim, has a smaller bill, and very narrow nuchal flesh-lappets. The naked skin below the eye is about .7 in. broad, and in shape nearly square. Its colours seemed to agree with those of the Tenasserim bird. The Hainan bird I placed alongside a Chinese specimen. They were both alive and I could not note their proportions; but they resembled one another greatly, and the only character I could fix for their discrimination was the subocular fleshy skin. The Hainan bird had it narrow, .25 in.; and the skin was lengthened downwards, and not square. I examined several of the Chinese form, and they all agreed in having it square-shaped. On this peculiarity I venture to separate the Hainan race; for my single specimen was left in charge of a friend, in whose hands it died, and, notwithstanding all my careful instructions, it was thrown away.

In the Chinese work on the Kiungshan District of Hainan the following occurs: " 'Tsin-ke-leao' [*Eulabes*, sp.]. South of the Meiling [mountains north-west of Canton city] there is a bird in appearance like the 'Keu-kuh' [*Acridotheres*], but larger and violet-black. The sides of its head have yellow flesh. It has a crimson bill and yellow feet, man's tongue, and man's eye; below the eye connecting with the neck is a deep-yellow patch. White examples also occur. Its eye is of three kinds. The yellow-eyed is the 'Golden Grackle,' and is the best. The white-eyed is the 'Silver Grackle,' and stands next. The black-eyed is the 'Iron Grackle,' and is the most inferior. Kept long it can learn man's words. It is vulgarly called 'Leao-ko.' It bears also the name 'Han-kin' [Bird of Han] "

Du Halde (*op. cit.*) mentions this bird as follows: " Merles

of a deep blue, which have two yellow ears raised half an inch, which speak, and whistle perfectly well."

The *Gracupica nigricollis* (Paykull) of South China did not occur in Hainan, though it is found in Siam.

113. *MUNIA TOPELA*, Swinhoe, 'Ibis,' 1863, p. 380.

114. *MUNIA ACUTICAUDA*, Hodgs.

Both these were common. My specimens of the latter are darker on the head and breast, like the Burmese and Formosan race, which differs in this respect from the Chinese bird.

115. *PASSER MONTANUS* (Linn.).

The domestic Sparrow, as usual, in these parts.

116. *EMBERIZA FUCATA*, Pall.

On the cleared grass-covered hills of Lingmun (Central Hainan) I shot three specimens of this Bunting on the 23rd of February. They were in company with Larks, Pipits, and other birds of cultivation.

117. *EMBERIZA SPODOCEPHALA*, Pall.

Common about gardens in February.

118. *EMBERIZA AUREOLA*, Pall.

On the 29th of March, at Haosuy (West Hainan), we got a fine male of this species.

119. *ALAUDA CÆLIVOX*, Swinhoe, Zool. 1859, p. 6724.

The little Sky-Lark was common in all cultivated parts of Hainan. I met it even in Lingmun (Central Hainan). From this last place I have the typical bird as found at Amoy. But from Hoitow (West Hainan) I have two examples with a longer and more arched bill, and with the hind claws very long. The feathers of their crowns, too, are longer and broader, and the upper feathers generally larger. Bill from forehead .58 in., from gape .67; tarsus .94; hind toe .42, its claw .85; wing 3.7; tail 2.5. These agree with my specimens of the Lark of North Formosa, of which I have a large series. I propose to name this race *ALAUDA SALA*.

120. *OSMOTRERON DOMVILII*, sp. nov.

During my few days' stay in the interior of Hainan I several times came across this little Green Pigeon, generally in pairs or small parties, keeping to the tops of high trees. I shot two

pairs. The iris has a circle of fine blue round the pupil, with a broad outer one of golden yellow. The basal half of the bill is fine blue, the apical half pale greenish-blue. I saw a Green Pigeon at the south end of the island, but I cannot be sure that it was of this species. It is closely allied to *O. bicincta*, Jerdon (B. Ind. iii. p. 449), but differs by its smaller size, by its forehead and throat being green, by the grey on its nape being small, in the form of a round spot, and not extending to the sides of its neck, and the much brighter yellow on its belly and underparts. Length about 9 inches; wing 6; tail 3·75.

The female is rather larger than the male, has the nuchal grey still smaller, wants the lilac and orange pectoral bands, and has the under tail-coverts very pale cinnamon. Length about 9·5 in., wing 6·3, tail 4.

I name this species in honour of Lieutenant Domville, R.N., who commanded the gunboat 'Algerine,' in which we made the cruise.

#### 121. CARPOPHAGA SYLVATICA, Tickell.

At Shuy-wei-sze (Central Hainan) on the 18th of February, as I was passing a farm-house, one of these monster Green Pigeons alighted on a tree in a paddock alongside. It was not timid, admitting of close approach. Its irides were dark pink. I did not come across the bird again till we got round to Hung-pe (West Hainan) on the 30th of March. On shore there, among the tall trees near villages, we found a small party of them and secured five. The irides of these I noted as "crimson." The birds were excellent eating. I have compared my specimens with skins from India, and can find no notable difference. Wing 9 inches, tail 6.

#### 122. MACROPYGIA TUSALIA (Hodgs.), var. MINOR.

At Tai-ping-sze (Central Hainan) this fine Dove was one of the commonest, occurring in all the large woods. Its coo is like that of the English Turtle, but more hurried and harsher. It is called by the Chinese there the "Luy-vong-tuy" (the Thunder-king's Dove). I shot several, of both sexes. The iris is composed of two circles, the inner one narrow and white, the outer broad and purplish-pink. The female and immature bird



carry bars on the underneck and breast, which disappear in the adult male. It was also pretty common in the jungle at Nychow (South Hainan).

My specimens are smaller than Himalayan skins, and the reflections on the hind neck have more pink and less green; but if too close for specific separation, they are worthy at least of the rank of a variety. A male from Hainan measures 13 inches, wing 7·27, tail 7·3; a female 12·5, wing 7·2, tail 6·8.

Du Halde (*op. cit.*) says, of the Hainan *Columbidæ*, "they have Turtle Doves in abundance, and two species of Cushats."

123. *TURTUR RUPICOLA* (Pall.); *T. gelastes*, T. & S. Faun. Jap.

A few of these were about the neighbourhood of Kiungchow city in February.

124. *TURTUR CHINENSIS* (Scop.).

I thought to have met the *T. tigrinus*, Temm., of the Straits; but everywhere in Hainan the common species was the bird that ranges from Canton to Shanghai. The skins I have brought back do not differ from Chinese examples. This Dove is called by the Hainan Chinese "Ko-tuy," the dialectic rendering of the Amoy "Ka-tsyu."

125. *TURTUR HUMILIS* (Temm.).

I shot a pair of these near Kiungchow city on the 10th of February, and saw them later in other parts of the island. They were not common.

126. *CHALCOPHAPS INDICA* (Linn.).

On the 27th of February at Shuy-wei-sze (Central Hainan) I saw and procured the only specimen of this lovely little Pigeon. It flew up from the ground and perched on the low branch of a tree. It is an adult male, differing from the skins from India and Ceylon that I have seen in being of a darker purple on the breast and belly, and in wanting the violet edgings to the feathers of the hind neck; but in a series of the former I find both the tints of the underparts and the amount of violet on the hind neck variable in intensity and extent, and I will not attempt to separate the Hainan bird on the peculiarities of a single specimen. Its wing measures 5·85 inches, its tail ·4, and its tarsus ·92.

## 127. GALLUS FERRUGINEUS (Gmel.).

I fully believed that Hainan would yield a Pheasant of some kind, and I never ceased inquiring of the natives whether "Hill-fowl" (the usual expression for Pheasants) were found among their woods. The reply was in the affirmative, and I eagerly looked out for them. Judge my disgust, then, when I discovered that the wonderful "Hill-fowl" was only a wretched Jungle-cock. Though greatly disappointed, in heart I was still pleased to make the acquaintance of a bird that I had not met before. On the 18th of February I was rambling in the early morning at Shuy-wei-sze (Central Hainan), and stepped through a hedge into a field at the further end of which was growing a patch of sweet potatoes. A rustic who was with me pulled me by the sleeve and cried "Twa kai" (Hill-fowl). I turned, expecting of course to see a Pheasant. The clod-hopper was pointing at an ordinary-looking rooster standing in the middle of the field with body erect and tail decumbent. Seeing me take no notice, the native cried out again, "Shoot, it is a wild bird, and not a barn-door fowl." I looked again and saw the bird moving away behind a hedge. When I got in view of him again, he ran for the hedge with all speed. There was no waddle in his gait, and I then saw that it was a wild bird. I fired and ran up. The wounded bird flapped and tumbled about precisely as a cock does when its neck is broken and it is thrown down to die. My heart misgave me; I thought I had shot some poor peasant's fowl; but I was wrong, every one I met told me that it was a genuine wild fowl, and on carefully examining it I found it to be so. Unfortunately neither its hackle nor its tail were fully developed. Its comb was small, and its spurs wart-like. Its iris was orange-yellow. Skin under the ear cream-white, purplish pink at its forward corner. Bill ochreous, brown on culmen. Legs brownish-grey, tinged with purple. Its intestines measured 3.5 feet; and its stomach contained sweet potatoes, vetches, and stone-grits. Its flesh was juicy and delicious eating, and quite different in flavour from that of the Barn-door. Its *testes* were of an enormous size; so that there can be no doubt the bird was breeding. On the 27th of February I visited the same field again; and on the same spot

where I first saw the cock, appeared the hen. Several natives were with me. They shouted "Hó hó Twa kai" (look, look! Hill-bird); and at the noise the hen rushed into the hedge, and we tried to beat her out in vain. She seemed to be of a deep brown colour, and in running kept her head low and her tail partly erect.

At Lingshuy (S.E. Hainan) we found grave-mounds on the edge of the jungle strewn with cock's feathers, as if the wild fowl were in the habit of meeting on the mounds to fight. At Yu-linkan (S. Hainan) I heard them repeatedly chuckling in the jungle quite close to me; but there was no getting a shot at them. In the dense woods about Nychow (S. Hainan) they were particularly common, and we heard and saw them often. When put up in the open, they make at once for the covert, flying heavily, with the body and tail nearly perpendicular. I saw a Le man put a cock bird up; and marking it drop into the wood, I hastened to the spot. It gave a crow "tok-tok tok tok chea"—as a domestic hen does when frightened. My follower raised it from the thick bush with a stone; it flew a short distance, and fell again into the thicket. Our party returned to the boat without a Jungle-fowl; and we saw no more of them in the course of our cruise.

The single male specimen that I have brought home is sufficient to show, from its black underparts and its general colouring, that the Hainan bird belongs to the ordinary species. The small hackles of its neck, however, are richer chestnut than in my Indian examples, and the feathers of its rump a much brighter red. But these vary in the different races of this bird, and my specimen is too undeveloped for close comparison.

I may mention that I noticed that the poultry of the villages on the outskirts of the jungle were very like the wild fowl, though I could not learn from the natives that they actually crossed. I considered this an important fact when I first observed it, as I was then under the impression that the Hainan Jungle-cock was a peculiar species. But in the case of *G. ferrugineus* this has already been noted by Mr. Blyth.

Du Halde ('Description de la Chine,' i. p. 230), mentioning

the Game Birds of Hainan, says, "There is there a Jungle-cock, which is of an exquisite taste."

The Chinese 'Gazetteer' remarks, under the characters "Shanke" (or Hill-fowl), "Loves to see its plumage reflected in the water, when it dances. During the reign of the Emperor Woote, of the Wei dynasty [A.D. 499-514], the southern regions presented this bird as tribute. If a large mirror be placed before the fowl, he sees his form reflected and dances without stopping."

A mandarin in Hainan informed me that Lui-chow-foo (the peninsula opposite to Hainan) produces a bird like a fowl, with longer legs, called the "Luy-kung-tsai" (Child of Lightning). This may interest some\*.

128. *FRANCOLINUS SINENSIS* (Osbeck).

*F. pintadeus* (Scop.); *F. perlatus* (Gmel.).

The South-China Francolin was common everywhere in Hainan, and we repeatedly heard its loud note. At Lingshuy (S. E. Hainan), I bought three males from a Chinese bird-catcher. He had caught them by a slip noose, with the help of a decoy bird. On our return to the capital (2nd April) we found them extremely common about the grave-covered plains, and often saw, as we passed along the road from the sea-port to the city, a cock Francolin perched on the top of a grave-mound shrieking out its loud call. The Hainan skins are similar to those from South China.

The Chinese 'Gazetteer' says of this bird, "the 'Chay-koo'

\* It would be as well here to remark on the Peacocks which I saw in an aviary at the residence of the Governor of Hainan, and thought (Ibis, 1868, p. 353; P. Z. S. 1868, p. 530) were *Pavo nigripennis*, Sclater, from the blackness of their wing-coverts. These birds, the Governor informed me, came from Cochin China, and had, as far as I can recollect, a crest shaped like that of *P. muticus*, and not like that of *P. cristatus*. I find, on my return to England, that Mr. Sclater's bird has the latter; and therefore I regret that I was so hasty in identifying the Cochin-Chinese bird with the *P. nigripennis*. On my last visit to England, I took note of the then new species; but my attention was not called to the shape of its crest, and I was led rather to regard the difference of its wing. Hence it is likely that the Cochin-Chinese species may be *P. muticus* after all.



[Francolin], when flying, is obliged to turn towards the south. Its cry sounds 'Kow chow kīh tīh'. It also says, 'Hing puh tīh yáy, kó-kó' [It is indeed of no use, my brother!]"

129. EXCALFATORIA CHINENSIS (Linn.).

On a grassy hill at Lingmun (Central Hainan) I fired at an *Emberiza fucata*, and put up three of these little creatures from quite close to me. I saw distinctly that they were two males and a female of this species. I may add that the female is the bird that I described before as *Coturnix caineaana* from Swatow (Ibis, 1865, p. 351).

130. ?TURNIX MACULOSA (Temm.).

I flushed a *Turnix* also at Lingmun, and at Nychow (S. Hainan) saw several rise from the dry grass outside the jungle. We did not pick up a single bird. The Lingmun bird looked like the *T. maculosa*; but it is not easy to determine one of this genus without actual handling.

131. SQUATAROLA HELVETICA (Linn.).

A specimen of the Grey Plover was shot on the mud of the Hungpe lagoon (W. Hainan) on the 30th of March.

132. CHARADRIUS LONGIPES, Temm.

This Golden Plover was common in the marsh near the city on the 5th of February. We found it in the dry rice-fields of Paklai (W. Hainan) on the 21st of March, and abundant among the sweet-potato gardens of Hoitow (W. Hainan) on the 23rd of March. On the 2nd of April, at the port of Kiungechow, we found them on the beach; they were then beginning to acquire the black underdress of summer.

133. ÆGIALITIS GEOFFROYI (Wagler).

On the mud of the creek at Paklai (W. Hainan) I shot a specimen of this large-billed Sand-Plover.

134. ÆGIALITIS MONGOLICUS (Pall.).

On the 7th of March, on the Chinlan river (N. E. Hainan), we shot one of these out of a small party that were about the sandy banks, and on the 30th of the same month I got another at Hungpe (N. W. Hainan). They were both in winter plumage. I have never found it on the south coast of China; but in

Shanghai a number of them, with many of *Æ. geoffroyi*, were hanging up in the market on the 18th of May, all in more or less complete summer plumage. The Hainan and Shanghai birds agree in proportions, and are evidently of the same species as that figured by Middendorff from the Amoor.

135. *ÆGIALITIS DEALBATUS*, Swinh., P.Z.S. 1870, p. 138.

The true Kentish Plover we did not obtain on the coast of Hainan, but the resident form of South China, which I have lately separated. All the five specimens which I brought away are of this pale-legged race.

136. *ÆGIALITIS INTERMEDIUS* (Ménétr.).

We shot one little Sand-Plover in Hainan which agrees with South-China and Indian specimens, and is of the same species as the larger of the two European smaller Ringed Plovers. The true *Æ. curonicus* I have not met with in China.

137. *HOPLOPTERUS VENTRALIS* (Wagler).

On the 18th of March, at Lingshuy (S. E. Hainan), we were riding along the bank of the little river that discharges into the lagoon, on our way to the Hien city, when I noticed a Kite pounce down on something on a little sandy island. The something attacked was a bird, which flew up with an angry cry, and struck at the Kite with its wings. It looked like a small Grey Harrier. I at once waded my pony across, and, dismounting, made for the spot. The Kite's quarry turned out to be a large Plover. Its mate was not far off, and, with the help of my comrades, I secured the pair. I was delighted to find that they were *Hoplopteri*, with long black crests, and a fine black spur on each carpal joint. The iris was of a deep rich brown. My specimens (♂ and ♀) are of the same size and colour, and do not differ from Indian examples.

138. *STREPSILAS INTERPRES* (Linn.).

We found large numbers of these in the Poochin river (N.W. Hainan) on the 5th of March. They sat on the fishing-stakes, and ranged themselves in rows on the ropes that ran from stake to stake. The four specimens I brought away are all acquiring the summer plumage.

139. *GRUS CINEREA*, Bechstein.

I have before noted that the Common Crane occurs in small parties every winter on the sand-flats of Swatow. In Naochow and Hainan they were very abundant, and we often had opportunities of watching them. They are prized as food by the natives, and the soldiers shoot at them, which renders them wild and difficult of approach. They feed largely here on sweet potatoes. It was only on the plains and open parts of the country that we saw them. They did not occur south of the mountains. The last flight we noticed was on the 23rd of March, at Hioitow (W. Hainan).

The magistrate at Lingmun informed me that "Cranes are born in pairs and mate for life. If one is born singly he remains a bachelor all his days, and becomes sentinel to the flock. This is a hard duty to perform; for if the sentinel gives a false alarm he is beaten, and if he does not give the alarm soon enough he is also beaten."

The Chinese 'Gazetteer' remarks on the abundance of Cranes in Hainan, and their scarcity in other parts of the Canton province.

140. *GALLINAGO STENURA* (Temm.).

We met this Snipe everywhere in Hainan during the whole of our stay. The females are larger than the males, more mottled beneath, and have the pin-shaped lateral rectrices longer and broader.

141. *GALLINAGO SCOLOPACINA*, Bp.

The Common Snipe was found in small parties in the marsh near the capital in February.

142. *RHYNCHÆA BENGALENSIS* (Linn.).

Often flushed.

143. *LIMOSA UROPYGIALIS*, Gould.

A pair were shot out of a party of Godwits feeding in the shallows of the creek at Hungpe (N. W. Hainan) on the 30th of March; these are nearly in full summer plumage. Later, on the 2nd of April, a solitary bird was picked off the sandy shore of Hoehow harbour; this is in the winter dress.

## 144. NUMENIUS MAJOR, T. &amp; S.

On our road to Lingshuy city (S. E. Hainan), on the 11th of March, I shot a solitary female of this species feeding in a stream. They were common enough in Hoehow harbour up to the beginning of April; and we got a female there on the 5th of February. The March bird was tinged with yellowish-chestnut on the dark parts of the upper plumage, showing that it was acquiring its summer dress.

I may here note that I have lately ascertained for a fact that the shorter-billed bird, which I before identified with *N. arquata* of Europe, is the male (the long-billed being the female) of *N. major* of Japan and China.

## 145. TRINGA ALPINA (Linn.).

In flocks on the Hoehow marsh.

## 146. TRINGA ALBESCENS, Gould.

A single specimen of this was shot on the Hungpe mud-flats on the 30th of March.

## 147. TRINGA PLATYRHYNCHA, Temm.

Shot on the Hoehow marsh, February 5th.

## 148. CALIDRIS ARENARIA (Linn.).

Shot in the Hungpe creek, March 30th.

## 149. LOBIPES HYPERBOREUS (Linn.).

As we were leaving Hungpe, four of these little birds flew towards the ship, and sat floating on the water close to her. On the 4th of April, on the shore of the Luichow peninsula, I saw one floating on a little pool caused by the tide overflowing a hollow in the sands. This specimen I secured.

## 150. TRINGOIDES HYPOLEUCUS (Linn.).

Common everywhere about water.

## 151. TOTANUS GLAREOLA (Gmel.).

On the 2nd of April we found the Wood-Sandpiper common in the springing rice near the capital; and plenty of them were being hawked about the city.

## 152. TOTANUS OCHROPUS (Linn.).

Seen on the Hoehow marsh.



153. *TOTANUS GLOTTIS* (Linn.).

Often seen, and many shot. On the Hoehow marsh in flocks of thousands. One specimen bagged had the under parts stained pink; it had probably been paddling about in the slough from some dyeing-establishment. The Chinese in Hainan often stain their white poultry with this colour.

154. *TOTANUS STAGNATILIS*, Bechst.

A party of them observed on the Hoehow marsh, on the 5th of February.

155. *TOTANUS CALIDRIS* (Linn.).

One of these was shot out of a party on the same marsh, and on the same date as the last mentioned.

156. *GALLINULA PHENICURA* (Pennant).

This Moorhen was common everywhere about the low lands. I saw it on the ponds within the walls of Kiungechow city, and frequently in the country in its neighbourhood. Also at Heongpoo (W. Hainan).

157. *LEPTOPTILUS JAVANICUS* (Horsf.).

Noticed on several occasions in the interior of Hainan about the moist paddy-fields, and about streams and ponds, always alone. The most intimate acquaintance I made with it was on the 24th of February, at Lingmun (Central Hainan). I was with my gun strolling up a grassy hill, when I noticed a Chinese gentleman coming in my direction in a sedan-chair. He suddenly had his chair put down, and spoke to one of the bearers, who came running to me and pointed to a paddy-field close to it, crying "*Hoang*," the name in Hainan for this bird, and beckoning me to go to it. I looked and saw a fine Adjutant standing in the water among the sprouting rice at the edge of the field. I walked slowly up to him. He sprang up, but again settled. I did not fire. He rose again, and made as if he would settle again, but, changing his mind, spread his expanse of wing and sailed away, ascending in broad circles, and never coming again within gunshot. I was so fascinated with my close interview with this majestic bird that I lost the will to fire at him. His upper parts appeared blue-grey black, and

his under parts white. He had a bare head and neck, of a yellow colour.

158. ARDEA CINEREA, Linn.

Seen in all parts of the island.

159. HERODIAS ALBA (Linn.).

160. HERODIAS GARZETTA (Linn.).

Both common. I shot one of each as they stood together in the shallows of the main river near Tinggan city.

I may here note that, on the marsh near Hoehow, I saw, on the 5th of February, a small party of large white birds flying over out of gunshot. They were of the size and general appearance of *H. alba*, but with short legs. They were not *H. intermedia*, nor indeed, I think, Herons at all, though they had pointed bills. I cannot conjecture what they could have been. I only saw them on that one occasion.

161. ?ARDEOLA PRASINOSCELES, Swinhoe, Ibis, 1863, p. 421.

The Squacco Heron was abundant about the paddy-fields and moist places, but it had not yet begun its moult. I shot one; but in the winter plumage it is almost impossible to state its species. In measurements it corresponds with specimens from South China; but so does a specimen from Siam. The Siamese bird is, I presume, the *A. bacchus*, Bp., of Malacca\*; ours may be the same. I therefore register it with a doubt. I have the *A. leucoptera* (Bodd.) of India in the winter plumage. It seems to have smaller legs, more of the size of those of *A. speciosa*, Horsf., of Java.

This bird is recorded in the Chinese 'Gazetteer' as "the 'Crane with waterproof clothes'†. Vulgar name, 'Paddy-field Cow-slave.' Plumage of a striped colour like waterproof coats. Usually in paddy-fields, following cattle and in their train seeking its food. Hence its common name."

162. NYCTICORAX GRISEUS (Linn.).

Often seen in large flocks.

\* In the Paris Museum they have the true *A. prasinosecles* from Cochin China; so that the Hainan bird is pretty sure to be the same.

† The waterproof cloak of the Chinese is made of bamboo leaves, and has the appearance of the neck of the Squacco-Heron in winter plumage.

## 163. ANAS PENELOPE, L.

## 164. ANAS CRECCA, L.

I did not come across any large tract of water in the interior of Hainan. On the rivers and marshy grounds near the coast, Ducks, even in February, were very scarce. We only noticed occasionally small parties of Wigeons and Teal of the two species named.

Du Halde (*loc. cit.*) remarks that in Hainan "Game abounds, and you can hunt there in every style. The Partridges, Quails, and Hares are not so good as those of Europe; but Snipe, Teal, and all the river birds are very good."

## 165. PODICEPS PHILIPPENSIS, Gmel.

Often seen on the small ponds and little streams in Hainan. I preserved one specimen.

## 166. DIOMEDEA BRACHYURA, T. &amp; S.

Observed at sea off Hainan on various occasions during the cruise.

167. LARUS NIVEUS, Pall.; *L. canus*, var. *major*, Middend. Sib. Reise.

168. LARUS CACHINNANS, Pall.; *L. argentatus*, var. *major*, Von Schrenck, Reis. Amurl.

In February Gulls were about the Hoehow harbour (port of Kiungchow), but I made them all out to belong to these two species. On the 30th of March we saw them again at Hungpe (N. W. Hainan); and on our return to the capital in April there were still some about. *L. crassirostris*, Bp. (*L. melanurus*, T. & S.), of Japan, does not appear to go so far south.

## 169. STERNA CASPIA, Lath.

Plentiful about the harbour of Hoehow in February and beginning of April. We often saw them sitting in large parties on the sand flats. I shot one, which has rather an immature wing. It has a white crown and occiput, covered with broad black streaks, the black mottling continuing all over the lores downwards to the rictus, and thence in a line to the ear-coverts. As the adult *S. caspia* has the black extending only to the nostril, and thence backwards, grazing the lower lid of the eye, I

thought the Hainan bird peculiar; but on looking through my Amoy series, I find that the adult in winter plumage, while it has the crown and lores mottled, has a black patch from the rictus to the ear-coverts. In a bird shot in March, with a bill much deeper red, this black has nearly disappeared, and the crown is much blacker; and, lastly, in another in full nuptial dress the white has returned to the space from the nostril backwards, as in a European specimen, kindly lent me for comparison by Mr. Cooke. This settles my doubt as to my supposed novelty, and adds a little information as regards the change of plumage in the true *S. caspia*.

170. *STERNA MELANAUCHEN*, Temm.

On the rocks near Hoehow.

171. *SULA FUSCA*, L.

On the 15th of February, up the main river near Tinggan city, I watched a Gannet soaring overhead. It was a clear sunny day, and I could see plainly that the bird was of this species.

172. *GRACULUS CARBO* (L.).

On the 28th of March, at Haosuy (W. Hainan), we saw a large party of Cormorants fly past. They looked like the ordinary species, which is the commonest one during winter in South China. Mr. Gould has shown me one of the same in full plumage received from Siam.

From the above list it will be seen that the avifauna of Hainan resembles more that of South China than one might expect in so low a latitude. It has, however, a close affinity to that of the Tenasserim countries; and only a few species seem to connect it with Formosa. I originally intended to discuss this subject in detail; but my materials are, perhaps, too scanty.

XXV.—*The Natural History of Quiscalus major*.

By ELLIOTT COUES, M.D., United-States' Army.

ALTHOUGH this bird is very abundant in some parts of the United States, its habits seem not to have been sufficiently in-



*Synonymy.*

- H. deshayesii* (Morelet). This species appears to have been overlooked by all writers on the genus. I learn, however, from its author that it is identical with *H. biplicata* (Newc.).
- H. luteola* (Fér.). This is the only one of the early described species which remains unidentified. It was described by Ferrussac from the specimens collected at our islands by M. Quoy. It will be observed that all the species collected by him are from the island of Oahu. A variety of *H. turritella* (Fér.) agrees, as to colour and other characters, with the description of M. Deshayes especially; and we have placed it consequently as a synonym of this species.
- H. maesta* (Newc.) inhabits the island of Lanai, in company with *H. obscura* (Newc.), of which it is a small variety.
- H. citrina* (Migh.) varies from *H. venusta*, Migh., only in being of a plain uniform yellowish colour. This species also occurs of a uniform slate- or occasionally olive-colour. Most of the specimens are ornamented with black reticulated lines, more usually confined to the spire; occasionally, however, the whole shell is densely covered with black markings.
- H. bacca* (Rve.) is a variety of *H. abbreviata* (Rve.), of smaller size, and of uniform colour.
- H. polita* (Newc.) inhabits the island of Molokai, in company with *H. bella* (Rve.), from which it varies only in the disposition of its colours. This species passes through more variations of colour and shape than have been noted heretofore. It may be always distinguished by its purple-tinted columella.

## 13. On the Cervine Animals of the Island of Hainan (China).

By ROBERT SWINHOE, F.Z.S.

I have brought with me from Hainan the horns and skins of three species of Deer (a *Cervulus*, a *Panolia*, and a *Rusa*), which, with Mr. Gerrard's kind assistance, I have compared with specimens in the British Museum.

1. The *Cervulus* I have identified with the *C. vaginalis* of India. But, of the seven flat skins I procured, only one has the head skin remaining. From the frontal markings on this no doubt is left as to the Hainan species being the Indian, and not *C. reevesi* of China as one would rather have expected it to be. The forehead of this specimen is rich chestnut, with two tufts of black hair, about  $\frac{3}{4}$  inch in diameter each, set between the eyes but in rear of their line. Its upper parts are bright chestnut, deeper along the back, and yellower on the sides; under parts brighter-coloured, whitish on the throat and under neck. Its short tail is rich chestnut above, pure white below. In one or two of the skins the fore leg from the shoulder to the knee is strongly tinged with black.



Judging from my own skins and the specimens in the Museum, *Cervulus vaginalis* attains a much larger size (say one-third) than *C. reevesi*. It is of a darker and richer colour, and is at once distinguished by the two round black tufts on the forehead. In *C. reevesi* these tufts are replaced by black lines, with a longer black line starting between the ears and running along the back of the neck to the shoulder.

I have two pairs of horns of the *Cervulus* from Hainan. The one I take to have belonged to a two-year-old. In this the brow-antler is a tine set inwards of the front of the beam. Total length of horn  $3\frac{1}{4}$  inches, cleft from base 1, brow-tine from cleft  $\frac{1}{2}$ . The horn bends inwards at its tip; it is mounted on a long bony pedicle  $2\frac{1}{2}$  inches long. Breadth between bases of bony pedicles  $2\frac{1}{8}$  inches, between horns at base  $3\frac{3}{4}$ , between horns at tips  $4\frac{3}{4}$ .

The second pair belonged to an older animal, I should say a 3-4-year-old. In this the brow-antler is set more inwards still. The horn measures  $4\frac{1}{2}$  inches, its bony pedicle  $1\frac{1}{8}$ ; breadth between the latter at bases  $2\frac{1}{4}$ , between horns at bases  $3\frac{1}{2}$ , between horns at tips  $3\frac{7}{8}$ ; circumference of horn at base  $2\frac{1}{8}$ . As the animal grows older the bony pedicle shortens and thickens, and, as shown by these two cases, the horns grow more parallel.

Mr. Blyth agrees with me in my identification of the Hainan Muntjac. He writes, "Your Hainan *Cervulus* is of the species inhabiting all India, with Ceylon, Indo-China, Malacca, and Sumatra, as distinguished from that of Java."

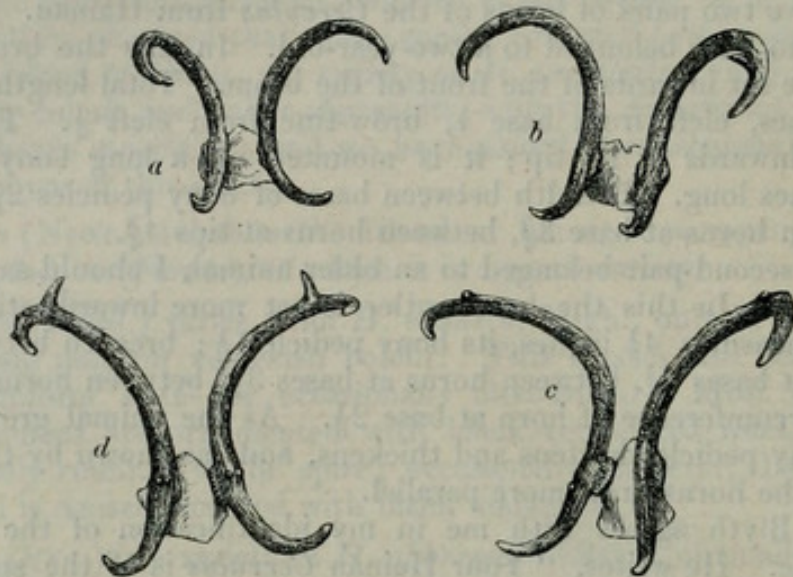
In a native work, containing some notes on the natural productions of Hainan, no difference is recognized between this and the ordinary Chinese species, *C. reevesi*. The work alludes to it as "the *Chang*, like a small deer, but more elegant. The male is the *Keun*, the female the *Yu*. Delights in a display of colours. The hunters flourish before it rags of brilliant colours, and it stops to stare at them." The *C. vaginalis* is known to the Hainanese as the *Hwangkia*, and under that name is spoken of as distinct from the *Chang* in the above Chinese work. The note on the *Hwangkia* is as follows:—"Large as a dog, has horns, and is in form a good deal like a Deer. Its flesh, when sliced and dried, is in taste somewhat similar to that of the Deer." The cry of this species is very like the short bark-like grunt uttered by *C. reevesi*.

2. The Hainan *Panolia* agrees with the *Cervus eldi* of Burmah and Siam. I have five pairs of horns and two odd ones, and the skin of a female in summer coat, and one of a fawn. The skin of the fawn is of a rich chestnut, deeper, with black hairs intermingled, on the back. A line of indistinct yellowish spots runs along either side of the dorsal centre from the shoulders to the tail, and a few more of similar spots occur in rear of shoulder-blade and about the hip-joint. The breast-girdle is brown. Between the fore legs and hind legs is pure white, the white running down the inner centre of the hind legs to below the shank; the under part of the tail and between the buttocks are also pure white; a dark brown line passes down the front of the fore legs. The female skin answers well to the skin of the buck, in summer dress, that died in the Society's Gardens



and is now in the British Museum, except that its hair is shorter and white spots are disposed in two lines, one on either side of the dorsal ridge, from the shoulders to the tail. The skin from the Gardens has no white spots; but *Cervus dimorphe* of Hodgson, also in the Museum, and without doubt a male *Panolia*, shows a few scattered spots.

Fig. 1.

*Cervus eldi.*

*a, b.* Second year. *c.* Third year. *d.* Fourth year.

Two pairs of my antlers (fig. 1, *a* & *b*) are of animals of about the same age; I think, the second year. Both of these have the brow-antler, but a postlateral snag only on the left horn. The brow-antlers appear to acquire their full proportionate growth at this stage, but the growth of the postlateral snag is irregular. The beams of the horns lean backwards from their base, and at first approach one another, and then, widening their distance apart, they curve well forward, the points falling short of the vertical line from the long brow-antler tips. The brow-antlers start forward, downwards, and outwards from the base, and curve upwards from the middle of their length, their tips inclining inwards; on a side view they form, with the shaft, two-thirds of a circle.

In a five-year old (fig. 2, p. 655) the postlaterals have lengthened and become lateral, and a diminutive snag or two show themselves near the points. In a three-year old (fig. 1, *c*) the beams are spread out much more laterally; on the left horn the postlateral occurs as a diminutive snag; on the right horn two together, and on the right brow-antler, near its base, is also a small snag.

In another, somewhat larger and probably a year older (fig. 1, *d*), the postlateral snags are well determined; each brow-antler has a small snag near its base, and the points have—the right one two snags and the left one one. Then in order comes the five-year old, on which I have before remarked.

Next I have two odd horns of still older animals, differing greatly in their curve. The smaller one is thicker, has one good-sized snag



Fig. 2.

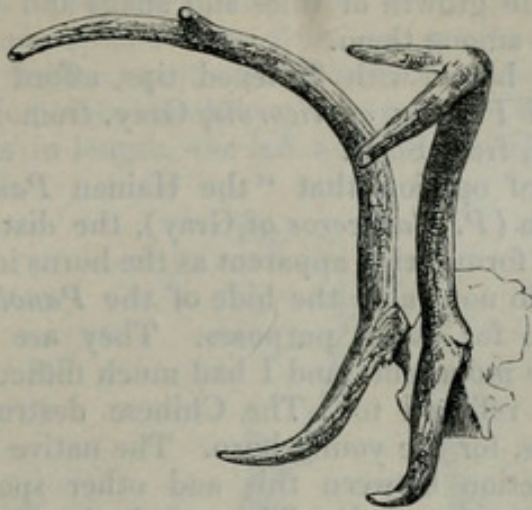
*Cervus eldi.* (Fifth year.)

Fig. 3.

*Cervus eldi.*

at base of brow-antler; the postlateral snag fully developed, with two diminutive tines together in rear of it. The point is greatly flattened and forked on giving off a snag from above with a pimple-like tine lower on the same surface. In the larger of the old horns the snag at the base of the brow-antler is diminutive; the postlateral snag small, the point somewhat flattened, with two small tines on its upper edge, near the postlateral, and a larger tine higher up, making a fork with the tip. I exhibit two somewhat similar horns (fig. 3, *a*, *b*), perhaps of animals still more aged.

I conclude that the typical horn is free from all snags except the postlateral, which itself is of uncertain growth.

A pair of antlers in the British Museum tally with my five-year old; but most of the horns there are large and of more adult



animals. They have none so young as my first four; but the same irregularity of the growth of tines and snags and the variability of the horn obtains among them.

My old single horns, with flattened tips, afford connecting-links between those of *Panolia acuticornis*, Gray, from Pegu, and of *P. platyceros*, Gray, from Siam.

Mr. Blyth is of opinion that "the Hainan *Panolia* is identical with that of Siam (*P. platyceros* of Gray), the distinction from the other, or western form, being apparent as the horns increase in size."

The Chinese do not value the hide of the *Panolia*, as they consider it too thin for useful purposes. They are therefore rarely brought from the mountains, and I had much difficulty in procuring the skins above referred to. The Chinese destroy this Deer, as they do all others, for the young horn. The native work on Hainan makes no distinction between this and other spotted Deer. It simply gives, "Deer (spotted). The male is the *Kia*, the female the *Yew*, the fawn the *Me*. Its young horns are like pink brinjals, three or four inches in length, and lovely fresh red; but in a very short time their tops decay and their bases get dry. If you break one it is like hard wood inside. These horns are called 'pink horns,' and are not equal to the product of Szechuen." This Deer is called *Liak* in the Hainan dialect.

3. Of the Hainan Sambur I have three pairs of horns, and the skins of a male and female, both adult, in winter coat. The skin of the male has coarse and stiffish hair, which is softer in the female. The former has blackish-brown on the forehead and between the horns, fading into a brown line along the back of the neck, which broadens and blends away along the back. In the female the neck-hair is shorter and the line more distinct. General colour of the male skin umber-brown, deeper on the back. Fore legs deeper-coloured on the outer surface, buff-white on the under and between the legs. Breast with softer and more woolly hair, of a blackish umber-brown. Belly, under hind legs, and buttocks white. The upper hair terminates at the buttocks and thighs with chestnut, which is followed by the white of the under sides. Hind legs deep umber, white on their inner sides. Hair of the hind neck and back with light brown basal halves; that of the sides with white bases, which gives a grizzly appearance in some lights.

The female fur is softer and of a more uniform colour, with a wash of chestnut, which is rather darker and richer on the rump. The white on the under parts is disposed as in the male.

The male skin measures, from behind the horns to the root of the tail,  $4\frac{1}{2}$  feet, the female skin 3 feet 8 inches. The grizzled appearance of the fur struck me at once as peculiar, and I felt sure that I had got a Sambur different from the dark Formosan race. In this respect it is very similar to the skins of the Indian Sambur, but approaches the *C. rusa* of Java in the whiteness of the under parts.

My three pairs of antlers, which are of different ages, are all characterized by having the hind prong of the apical fork short. The youngest pair (fig. 4, *a*) I take to have belonged to an animal of two years, the second pair (fig. 4, *b*) to an animal of three years, and the



third pair (fig. 5) to an animal of, say, five years. They all have brow-antlers and a postlateral snag below the point of the main beam. The youngest pair incline away from one another at a very slight angle, being  $3\frac{1}{4}$  inches apart at the base and 7 inches between the upper forks; the points stand 8 inches apart. The right horn measures  $13\frac{1}{2}$  inches in length, the left horn  $12\frac{1}{2}$ . Their circumference

Fig. 4.



Sambur from Hainan.

a. Two years old. b. Three years old.

Fig. 5.



Sambur from Hainan. (Five years old.)

at base of beam is  $5\frac{1}{4}$ , at middle of beam  $3\frac{1}{2}$ . The brow-antler inclines outwards, and measures from the cleft  $1\frac{3}{4}$  inch; the postlateral snag a little inwards, and measures from its cleft  $1\frac{1}{4}$ ; the point from upper cleft  $3\frac{3}{4}$ . From the brow-cleft to base of horn is  $3\frac{1}{8}$ , and the bony pedestal below is high, and inclines forwards and



then backwards. The beam inclines backwards and upwards, and then curves gradually forwards and sideways.

In the three-year pair the bony pedicle sinks in height, and the brow-antler lengthens greatly, making a deeper cleft; the horns incline from each other at a much greater angle; the hind snags lengthen and become more lateral, and the points are much larger; the beam the while remains much the same in length and thickness.

The measurements are—

	inches.
Total length of horn . . . . .	14 $\frac{1}{2}$
Length of brow-antler from cleft . . . . .	6 $\frac{5}{8}$
——— of cleft to base of horn . . . . .	2 $\frac{1}{8}$
——— of upper cleft to point . . . . .	6 $\frac{3}{8}$
——— of postlateral snag . . . . .	2 $\frac{1}{4}$
Distance apart at base of horn . . . . .	3 $\frac{3}{4}$
——— below upper cleft . . . . .	10 $\frac{1}{2}$
——— of brow-antlers . . . . .	11
——— at tips . . . . .	16 $\frac{1}{2}$
——— of hind snags . . . . .	10 $\frac{1}{4}$

In the five-year old the horns are in every way larger and longer; the brow-antlers and the points are much lengthened, and curve inwards. The postlateral snags become still more lateral, and a rudimentary tine shows itself on the inner side of the right brow-antler, near the cleft.

*Measurements.*

	inches.
Total length of horn . . . . .	18
Length of brow-antler from cleft . . . . .	8 $\frac{1}{2}$
——— of cleft to base of horn . . . . .	2 $\frac{1}{2}$
——— of upper cleft to point . . . . .	7 $\frac{3}{4}$
——— of postlateral snag . . . . .	4
Distance apart at base of horns . . . . .	4 $\frac{1}{2}$
——— below upper cleft . . . . .	12 $\frac{3}{4}$
——— of brow-antlers . . . . .	11 $\frac{1}{2}$
——— at points . . . . .	12
——— of hind snags . . . . .	9
Circumference at base of beam . . . . .	5 $\frac{7}{8}$
——— at centre . . . . .	4

The horn of the typical Sambur (*C. aristotelis*), of which there is a large series in the British Museum, is well marked by having the hind snag of the apical fork prolonged into the main prong, while the fore snag is reduced into a secondary position; this character seems to hold good throughout the series. But the Museum has also horns from unknown localities, which resemble our Hainan specimens in the shortness of the hind snag and the prolongation of the fore snag; and in Mr. Flower's possession I have seen horns which agree closely with mine. Mr. Flower's specimens were received from Mr. Blyth, but, unfortunately, it is not known in what part of India they were collected. The horns of the Formosan Sambur (*C. swinhoei*) are of much the same form as those of the Hainan race,



but are stouter in the beam, while those of *C. rusa* of Java approximate to those of the typical Sambur. I am led to the conclusion that the Hainan race is distinguishable from the Sambur of India proper (*C. aristotelis*) by the shape of its horns at their apical bifurcation and by its smaller size, and from the *Cervus swinhoii*, Selater, of Formosa, by the longer and less robust beam of horn, and by the different coloration of the fur; and I believe it to be identical with the *Cervus equinus*, Cuv., of Sumatra and Borneo, a good figure and description of which are given by S. Müller in the 'Verhandelingen,' Zool. p. 213, pl. 42.

Mr. Blyth was so good as to inspect my horns from Hainan, and has written to me the following:—"As for the Sambur horns, I consider *Cervi equinus*, *aristotelis*, and *hippelaphus* to be one and the same, though showing some local differences, as is equally the case with horns of *C. elaphus*. Eastwards of the Bay of Bengal the animal seems to be smaller, and more or less nigrescent in Borneo, less so in Malacca and Sumatra than in Borneo, but always different from *C. rusa* of Java, of which *C. moluccensis* is a diminutive, and *C. timoriensis* a further diminutive. *C. swinhoii* of Formosa holds the same relation to *C. hippelaphus* as *C. taiwanus* to *C. mantchuricus*, and *C. moluccensis* to *C. rusa*."

The Sambur is an abundant species on the jungly mountains of the southern half of Hainan; and large numbers are yearly slaughtered by the independent *Le* tribes, and the skins and horns bartered to the Chinese. The skins are carried to the capital city, where the hair is planed off, and are then exported as raw hides to Canton.

The only time I saw the Hainan Sambur in its live state was on the 19th March, at Nychow (S. Hainan). We had scrambled through the jungle near the shore on to an open hill. Beyond us and the mountain was a deep ravine, with a stream trickling through it. We stopped to rest on the hill-top overlooking the ravine, when, on the opposite side, passing up from the streamlet, we noticed a fine hornless buck and two doe Sambur. They did not observe us, but continued lazily upwards, nibbling off the leaves of bushes as they went. We crossed the ravine and ascended to the edge of an open greensward, which the deer had already gained. At the further corner of the sward, about 60 yards off, with jungle in rear of them, they stood staring at our intrusion. My comrade bustled up behind with his gun, and they took alarm. The buck stamped his foot and uttered a loud half grunt, half scream, and they all charged into the thicket. After they had attained a height on the hill, the noise of the crushing and cracking of the brush before them ceased, as if they had stopped to have another look at us; but the noise was soon resumed, until they were too far off to be heard.

This Deer is called by the Hainanese *Twabé*, or Mountain Horse. The Chinese work has the following remarks on the species:—"The ancients say it is like a Deer, but larger, and assembles in herds of a hundred or more. Its horns bend backward, and are without tines. Its hair is like that of the Mountain-Cow. Below its eyes are two other eyes, which close in the day and open at night. It delights



to enter thorny thickets. The *Le* people procure them, and barter their hides for cloth. The hides are good for sleeping upon, as they protect against the damp ground."

4. This allusion to the "Mountain-Cow" induces me to extract the observations in the same Chinese work on that animal. After mentioning domestic cattle which have run wild, the book says:—"There is another race, like cattle, but with red eyes. They walk about among the hills in herds, and are not pressed at the sight of men. They are called 'Mountain Cows.' In the hills of the *Le* territory they are particularly abundant." The "Mountain Horse," or Sambur, has similar hair, we are told. Can the "Mountain Cow" be the *Budorcas taxicolor* of Hodgson, or some species allied to it? This must for the present remain a question, as I learned nothing of this animal from the natives, and got no samples of it.

5. The *Kiung shan Heen che* (or Gazetteer of the Kiungshan District of Hainan), the Chinese work referred to above, also mentions the *King*, an animal "like the Spotted Deer, but smaller, and of a black colour." The character *King* (pronounced *Kiu-ng* in Amoy) is the local name in Fokien for the *Cervulus reevesi*; and the same character is read *Kia* in the Hainan dialect; but in this work another character is given for the *Kia* of *Hwangkia*, the Hainan name for the *Cervulus vaginalis*. I should have thought that the *King* of the Chinese work might apply to some species of *Capricornis*, perhaps to *C. sumatrensis*, which occurs in Malacca and Tenasserim, but for the following remarks made in the same list of Hainan animals. "The *Choo* or *Me* drops its horns in the fifth moon (July). The velvety horns are of use, and as good as those of the Spotted Deer." A work of the former Han dynasty says that the hills of Tanurh and Choogai (districts into which Hainan was divided in the last century B.C.) abound in Choos and Kings. Yen Shekoo, in a commentary on the above, explains that the *Choo* is like a spotted deer, but larger. The '*Ming Yuen*,' or "clear illustrations," "affirms that a full-grown *Luh*, or spotted deer, is called a *Choo*. The herd follow it, observing its tail as their guide. Its tail is used for brushing off dust. Flap carpets with it, and they will not breed moths. Placed between crimson silks, the colour of the silks will not fade for years." It will thus be seen that *Choo* (which is written with the radical for deer, and the character for lord) is simply the monarch or leader of a herd of spotted deer, which in Hainan would be *Panolia*. In the same way, with reference to the Formosan Deer, I have discovered that *Me* applies to a large buck of the Sambur group. The character *King* is here adopted, apparently, for the *Panolia* in its dark winter dress.

6. Under the head of Hare another and the last *Cervine* animal is spoken of as "a large species (of Hare), called *Pé*, of a grey colour, with feet like a deer. The *Kiungchow* people often keep it alive." This must be a species of *Tragul*, and probably, I think, *T. meminna*, of which the British Museum has a specimen from Cambodia. I did not have the good fortune to fall across this little animal on my visit to Hainan.



## APPENDIX.

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### LIST OF ADDITIONS TO THE SOCIETY'S MENAGERIE

DURING THE YEAR

1869.

- Jan. 1. 1 Black Ape (*Cynopithecus niger*), ♀. Purchased.  
 2. 1 Macaque Monkey (*Macacus cynomolgus*), ♂. Presented by Miss Elmhirst.  
 4. 1 Spotted Hyæna (*Hyæna crocuta*), ♂. Born in the Menagerie.  
 8. 1 Marmoset Monkey (*Hapale jacchus*), ♀. Presented by Miss F. Hill.  
 11. 1 Black Swan (*Cygnus atratus*). Presented by H. R. Cox, Esq.  
 12. 1 Black-necked Swan (*Cygnus nigricollis*), ♂. Received in exchange.  
 13. 1 Two-wattled Cassowary (*Casuarius bicarunculatus*), ♀. Purchased.  
     1 Cinnamon Bear (*Ursus americanus*, var. *cinnamomea*), ♂. Purchased.  
     1 Javan Civet (*Viverra tangalunga*). Purchased.  
 14. 1 Ring-necked Parrakeet (*Palæornis torquata*), ♂. Presented by Vero K. Shaw, Esq.  
     1 Golden Eagle (*Aquila chrysaëtos*), ♀. Presented by Alfred Dixon, Esq.  
     2 pairs Impeyan Pheasants (*Lopophorus impeyanus*). Received in exchange.  
 19. 1 King Vulture (*Gyparchus papa*). Purchased.  
     2 Jerboas (*Dipus ægyptius*). Purchased.  
     4 Orange-headed Conures (*Conurus jendaya*). Purchased.  
 20. 1 White Peafowl (*Pavo cristatus*), ♂. Received in exchange.  
     500 Salmon Ova (*Salmo salar*). Presented by F. T. Buckland, Esq., F.Z.S.  
     200 Great-Trout Ova (*Salmo lacustris*). Presented by F. T. Buckland, Esq., F.Z.S.  
     200 Salmon-Trout Ova (*Salmo trutta*). Presented by F. T. Buckland, Esq., F.Z.S.  
     100 Charr Ova (*Salmo umbla*). Presented by F. T. Buckland, Esq., F.Z.S.  
     1 Crowned Eagle (*Spizaëtus coronatus*), ♀. Purchased.



- Jan. 20. 1 Rose-crested Cockatoo (*Cacatua moluccensis*), ♂. Presented by Mrs. Hutton.
21. 2 Rhesus Monkeys (*Macacus erythraeus*), ♂. Presented by F. Luck, Esq.
- 5 Bass (*Labrax lupus*). Presented by H. Lee, Esq.
- 2 Soles (*Solea vulgaris*). Presented by H. Lee, Esq.
- 3 Flounders (*Platessa flesus*). Presented by H. Lee, Esq.
- 1 Turbot (*Psetta maxima*). Presented by H. Lee, Esq.
- 1 Armed Bullhead (*Aspidophorus cataphractus*). Presented by H. Lee, Esq.
- 1 Unctuous Sucker (*Liparis vulgaris*). Presented by H. Lee, Esq.
22. 1 Arabian Baboon (*Cynocephalus hamadryas*). Presented by Com. W. G. Aldrich, R.N.
- 1 Chimpanzee (*Troglodytes niger*), ♂. Deposited.
- 1 Mandarin Duck (*Aix galericulata*), ♂. Purchased.
23. 4 Red-bellied Waxbills (*Estrelda rubriventris*). Presented by W. G. Dowling, Esq.
- 2 Nutmeg Birds (*Munia undulata*), ♂. Presented by W. G. Dowling, Esq.
- 1 Red-headed Weaverbird (*Euplectes madagascariensis*). Presented by W. G. Dowling, Esq.
- 1 American Badger (*Taxidea americana*). Purchased.
24. 1 Wood-Owl (*Syrnium aluco*). Presented by F. Petford, Esq.
- 1 Pallas's Eared Pheasant (*Crossoptilon auritum*), ♂. Received in exchange.
25. 1 Crested Ground-Parrakeet (*Calopsitta novæ hollandiæ*). Presented by A. M. Speer, Esq.
27. 1 Macaque Monkey (*Macacus cynomolgus*), ♂. Presented by G. B. Train, Esq.
- 1 Marmoset Monkey (*Hapale jacchus*). Presented by T. W. Newman, Esq.
- 1 Dusky Parrot (*Pionus violaceus*). Purchased.
29. 1 Large Swiss Trout (*Salmo lacustris*). Presented by Mr. Groves.
30. 1 One-streaked Hawk (*Melierax monogrammicus*). Purchased.
- Feb. 2. 1 Kinkajou (*Cercoleptis caudivolvulus*), ♂. From Buenos Ayres. Presented by Dr. John Palin, C.M.Z.S.
- 2 Capybaras (*Hydrochærus capybara*). From Buenos Ayres. Presented by George Wilks, Esq., C.M.Z.S.
- 1 Macaque Monkey (*Macacus cynomolgus*), ♂. Presented by Charles James, Esq.
3. 1 Hawk's-billed Turtle (*Caretta imbricata*). Presented by Messrs Gilson and Quelch.
- 1 American Brown Crane (*Grus canadensis*). Purchased.
- 1 Carolina Coniure (*Comurus carolinensis*). Presented by F. G. Streatfield, Esq.
4. 2 Globose Curassows (*Craz globicera*). Received in exchange.
- 3 Crested Pigeons (*Ocyphaps lophotes*). Received in exchange.
- 4 Green-winged Doves (*Chalcophaps chrysochlora*). Received in exchange.
- 4 Barred-shouldered Doves (*Geopelia humeralis*). Received in exchange.
- 1 Talegalla (*Talegalla lathamii*). Received in exchange.
- 1 Laughing Kingfisher (*Dacelo gigantea*). Received in exchange.
- 11 King Parrakeets (*Aprosmictus scapulatus*). Received in exchange.



- Feb. 5. 7 River-Lampreys (*Petromyzon fluviatilis*). Presented by F. T. Buckland, Esq., F.Z.S.
6. 1 Grey Parrot (*Psittacus erithacus*). Purchased.  
1 Common Wild Cat (*Felis catus*). Presented by Capt. the Hon. H. T. Fraser.
10. 1 Dingo (*Canis dingo*), ♂. Presented by J. C. Macdonald, Esq., F.Z.S.
13. 1 Vieillot's Fire-backed Pheasant (*Euplocamus vieilloti*), ♂. Deposited.  
1 Temminck's Tragopan (*Ceriornis temminckii*). Deposited.  
1 West-African Crocodile (*Crocodilus vulgaris*). Purchased.
15. 1 Egyptian Jerboa (*Dipus ægyptius*). Presented by Capt. Pain.  
2 Bengalese Leopard Cats (*Felis bengalensis*). Presented by Major J. Pearse, Madras Staff Corps.
16. 1 European Lynx (*Felis lynx*). Purchased.  
1 Mallee Bird (*Leipoa ocellata*). Presented by the Directors of the Botanic Gardens, Adelaide, South Australia.  
3 Australian Monitors (*Monitor gouldii*). Presented by the Directors of the Botanic Gardens, Adelaide, S. Australia.  
4 Stump-tailed Lizards (*Trachydosaurus rugosus*). Presented by the Directors of the Botanic Gardens, Adelaide, S. Australia.  
3 Maugé's Dasyures (*Dasyurus maugæi*). Presented by the Directors of the Botanic Gardens, Adelaide, S. Australia.  
1 Golden-bellied Beaver Rat (*Hydromys chrysoaster*), ♂. Presented by the Directors of the Botanic Gardens, Adelaide, S. Australia.  
1 White Rat (*Mus rattus*). Presented by W. A. Forbes, Esq.
17. 1 Grey Ichneumon (*Herpestes griseus*). Presented by Capt. Melville Clarke.
18. 1 Grey Ichneumon (*Herpestes griseus*). Presented by Capt. R. O. B. Crowther.
19. 1 Syrian Fennec (*Canis famelicus*), ♂. Presented by the Sinai Survey Expedition.  
1 American Brown Crane (*Grus canadensis*). Purchased.  
1 Emu (*Dromæus novæ hollandiæ*). Presented by H.R.H. the Prince of Wales.  
2 Brazilian Tortoises (*Testudo tabulata*). Purchased.
20. 1 Vulpine Phalanger (*Phalangista vulpina*), ♀. Presented by Capt. Jas. N. Smart.
22. 1 Jelerang Squirrel (*Sciurus bicolor*), ♀. Purchased.
24. 2 Yellow-footed Rock-Kangaroos (*Petrogale xanthopus*), ♀. Presented by Capt. Bolton, Edinburgh.
25. 4 Indian Chameleons (*Chamæleon vulgaris*). Purchased.
26. 1 Green Glossy Starling (*Lamprocolius chalybeus*). Presented by Mr. Edward Hawkins.  
1 Teguexin Lizard (*Teius teguexin*). Purchased.
28. 1 Hog Deer (*Cervus porcinus*), ♂. Born in the Gardens.
- Mar. 2. 2 Red-winged Parrakeets (*Aprosmictus erythropterus*). Deposited.
4. 2 Vulpine Phalangers (*Phalangista vulpina*), ♂ and ♀. Presented by J. W. Tyas, Esq.  
1 Sooty Phalanger (*Phalangista fuliginosa*), ♂. Presented by J. W. Tyas, Esq.  
1 Cereopsis Goose (*Cereopsis novæ hollandiæ*). Presented by J. W. Tyas, Esq.
5. 1 Pike (*Esox lucius*). Presented by Mr. P. W. Madsen.  
1 Senegal Touracou (*Corythæix persa*). Purchased.



- Mar. 5. 2 Leopards (*Felis leopardus*), ♂ and ♀. From Sierra Leone. Presented by Mrs. Thos. Brassey.
6. 1 Stump-tailed Lizard (*Trachydosaurus rugosus*). Presented by Capt. Clarke.
8. 2 Golden Agoutis (*Dasyprocta agouti*), ♂ and ♀. Presented by H. M. Ridley, Esq.
- 1 Restless Cavy (*Cavia aperea*). Presented by H. M. Ridley, Esq.
- 1 Senegal Coucal (*Centropus senegalensis*). Purchased.
9. 1 Red and Yellow Macaw (*Ara chloroptera*). Deposited.
- 2 Red-breasted Pigeons (*Phlogœnas cruentata*). Purchased.
- 1 Vulpine Phalanger (*Phalangista vulpina*), ♀. Presented by James Boorne, Esq.
- 1 Eland (*Oreas canna*), ♀. Born in the Gardens.
- 3 Menopomas (*Menopoma alleghaniense*). Presented by the Smithsonian Institution, Washington, U.S.A.
- 2 Florida Land-Tortoises (*Testudo polyphemus*). Presented by the Smithsonian Institution, Washington, U.S.A.
10. 2 Cuvier's Podargus (*Podargus cuvieri*). Purchased.
11. 1 Coati (*Nasua nasica*), ♀. Purchased.
12. 3 Barred-tailed Pheasants (*Phasianus reevesii*), 1 ♂ and 2 ♀. Deposited.
- 1 Cape-Bunting (*Fringillaria capensis*). Presented by Miss C. Boyle.
- 4 Yellow-backed Whydah Birds (*Vidua macroura*). Presented by Miss C. Boyle.
15. 3 Amaduvade Finches (*Estrela amadava*). Purchased.
- 4 Orange-cheeked Waxbills (*Estrela melpoda*). Purchased.
- 4 Crimson-eared Waxbills (*Estrela phaenicotis*). Purchased.
- 4 Common Waxbills (*Estrela cinerea*). Purchased.
- 4 African Silver-bills (*Munia cantans*). Purchased.
- 2 Yellow-rumped Seed-eaters (*Crithagra chrysopyga*). Purchased.
- 2 Occidental Finches (*Quelea occidentalis*). Purchased.
- 4 Hooded Finches (*Amadina cucullata*). Received in exchange.
16. 1 Greater Sulphur-crested Cockatoo (*Cacatua galerita*). Deposited.
24. 1 Vulpine Phalanger (*Phalangista vulpina*). Presented by Capt. G. E. Bird.
- 1 Yaguarundi Cat (*Felis jaguarundi*). Presented by Capt. G. E. Bird.
- 1 Dorsal Squirrel (*Sciurus dorsalis*). Presented by Capt. G. E. Bird.
25. 1 Egyptian Monitor (*Monitor niloticus*). Purchased.
- 3 Crested Ground-Parrakeets (*Calopsitta novæ hollandiæ*), 1 ♂, 2 ♀. Presented by John Lacey, Esq.
- 13 Ruffe or Pope (*Acerina cernua*). Presented by F. Jonas, Esq.
27. 1 Coati (*Nasua nasica*), ♂. Purchased.
30. 1 Grivet Monkey (*Cercopithecus griseo-viridis*), ♀. Presented by Capt. J. Cracknell.
31. 1 Musk-Deer (*Moschus moschiferus*), ♀. Presented by Colonel F. R. Pollock, C.S.I. Commissioner, Peshawur, Punjaub, India.
- Apr. 3. 1 Brown Bear (*Ursus arctos*), ♂. Deposited.
- 1 Domestic Dog (*Canis familiaris*), ♂. Deposited.
5. 2 Maguari Storks (*Ciconia maguari*). Presented by George Wilks, Esq., C.M.Z.S.
- 1 Great Eagle-owl (*Bubo maximus*). From Gibraltar. Deposited.
- 1 Cape Eared Owl (*Otus capensis*). From Spain. Deposited.
- 2 Kingfishers (*Alcedo ispida*). Purchased.



- Apr. 6. 2 Black-tailed Water-hens (*Tribonyx ventralis*). Hatched in the Gardens.
- 1 Lion (*Felis leo*), ♂. From Babylonia. Deposited.
- 1 Aoudad (*Ovis tragelaphus*), ♂. Born in the Menagerie.
- 2 African Tantalus (*Tantalus ibis*). Purchased.
8. 1 Hybrid Kangaroo (between *Halmaturus bennettii*, ♂, and *Halmaturus ruficollis*, ♀). Born in the Menagerie.
- 1 Great Kangaroo (*Macropus giganteus*), ♀. Born in the Menagerie.
- 2 Cretan Goats (*Capra bedon*), ♂. Born in the Menagerie.
- 1 Red and Yellow Macaw (*Ara chloroptera*). Presented by the Earl Nelson.
9. 1 Proteus (*Proteus anguinus*). Presented by Francis Halsey, Esq.
- 1 Blue-crowned Conure (*Conurus hæmorrhous*). Presented by Mrs. Wright.
- 1 Cretan Goat (*Capra bedon*), ♂. Born in the Menagerie.
10. 1 Ibex (*Capra ibex*), ♂. Born in the Menagerie.
- 1 Common Adder (*Pelias berus*). Presented by W. R. Tate, Esq.
- 1 Tasmanian Piping Crow (*Gymnorhina organica*). Deposited.
11. 1 Equine Deer (*Cervus equinus*), ♀. Born in the Menagerie.
- 3 Black-tailed Water-hens (*Tribonyx ventralis*). Hatched in the Gardens.
12. 2 Pied Rats (*Mus rattus*), ♂ and ♀. Presented by J. Mason, Esq.
13. 1 Talapoin Monkey (*Cercopithecus talapoin*), ♂. Presented by John Gould, Esq., F.Z.S.
- 1 Blackheaded Gull (*Larus ridibundus*). Presented by John Gould, Esq., F.Z.S.
- 2 Common Peafowls (*Pavo cristatus*), ♂ and ♀. Presented by Maj.-Gen. J. K. Whistler.
14. 1 Mangabey Monkey (*Cercocebus æthiops*), ♀. Presented by Col. Addison.
- 2 Common Sheldrakes (*Tadorna vulpanser*), ♂ and ♀. Received in exchange.
- 1 Grey Parrot (*Psittacus erithacus*). Deposited.
- 1 Crimson-crowned Weaverbird (*Euplectes flammiceps*), ♂. Presented by Miss C. Boyle.
- 1 Obscure Finch (*Serinus*, sp. ign.), ♀. Presented by Miss C. Boyle.
- 1 Iceland Falcon (*Falco islandicus*), ♀. Presented by Capt. J. A. Martyn.
- 1 Burchell's Zebra (*Equus burchellii*), ♂. Deposited.
- 2 Secretary Vultures (*Serpentarius reptilivorus*). Purchased.
15. 1 Secretary Vulture (*Serpentarius reptilivorus*). Presented by J. S. Mackenzie, Esq.
- 1 Ælian's Wart-hog (*Phacochoerus æliani*), ♀. From Zoula, Abyssinia. Purchased.
- 1 Smew (*Mergus albellus*), ♀. Purchased.
- 5 Golden Plovers (*Charadrius pluvialis*). Purchased.
- 12 Lumpfish (*Cyclopterus lumpus*). Purchased.
16. 1 Javan Chevrotain (*Tragulus javanicus*), ♀. Presented by J. Deacon, Esq.
- 1 Polecat (*Mustela putorius*). Presented by F. H. Salvin, Esq.
- 1 Macaque Monkey (*Macacus cynomolgus*), ♂. Presented by John Ferris, Esq.
- 1 Marsh Harrier (*Circus æruginosus*), ♂. Purchased.
- 1 Common Bittern (*Botaurus stellaris*). Presented by the Hon. T. de Grey, M.P., F.Z.S.



- Apr. 16. 1 African Tantalus (*Tantalus ibis*). Purchased.  
 1 Squirrel Monkey (*Callithrix sciureus*), ♂. Purchased.
17. 1 Wood-Owl (*Syrnium aluco*). Presented by George W. Arnott, Esq.  
 1 Coati (*Nasua nasica*), ♀. Presented by Chas. Denneley, Esq.  
 1 Common Adder (*Pelias berus*). Presented by F. D. Drewitt, Esq.  
 1 Nilotic Trionyx (*Trionyx niloticus*). Presented by Alexander Baird, Esq.
19. 2 Bower-birds (*Ptilonorhynchus holosericeus*). Purchased.  
 2 Blue-crowned Hanging Parrots (*Loriculus galgulus*). Purchased.  
 1 Viscacha (*Lagostomus trichodactylus*). Born in the Menagerie.  
 1 Kinkajou (*Cercoleptes caudivolvulus*), ♂. Presented by D. M. Eder, Esq.
20. 1 Spotted Cavy (*Cælogenys paca*). Presented by Dr. Somersfield.  
 5 Cuming's Octodons (*Octodon cumingii*). Born in the Menagerie.  
 1 Entellus Monkey (*Semnopithecus entellus*), ♂. Purchased.
21. 1 Ring-necked Parrakeet, yellow var. (*Palæornis torquata*). Presented by Lieutenant C. H. T. Marshall.  
 2 pairs Virginian Colins (*Ortyx virginianus*). Purchased.  
 2 pairs Californian Quails (*Callipepla californica*). Purchased.
22. 1 Grey Parrot (*Psittacus erithacus*). Deposited.
23. 2 Common Boas (*Boa constrictor*). Presented by Capt. Perry.  
 1 Common Badger (*Meles taxus*). Presented by the Lord Willoughby d'Eresby.  
 2 Tibetan Wolves (*Canis laniger*). Born in the Menagerie.
26. 1 Temminck's Snapper (*Macroclermys temminckii*). Deposited.  
 1 Arabian Bustard (*Otis arabs*). Received in exchange.  
 6 Bourke's Parrakeets (*Euphema bourkii*). Purchased.  
 2 Blue-Bonnet Parrakeets (*Psephotus hæmatogaster*).  
 1 Hawk's-billed Turtle (*Caretta imbricata*). Presented by Capt. Miles.
27. 2 Red Ground-Doves (*Geotrygon montana*). Deposited.  
 4 Mountain Witch Doves (*Geotrygon sylvatica*). Deposited.  
 1 Goss's Owl (*Otus grammicus*). Deposited.  
 4 Zenaida Doves (*Zenaida amabilis*). Deposited.  
 4 White-fronted Doves (*Leptoptila jamaicensis*). Deposited.  
 1 White-crowned Pigeon (*Columba leucocephala*). Deposited.  
 1 Moustache-Pigeon (*Geotrygon mystacea*). Purchased.  
 2 Zenaida Doves (*Zenaida amabilis*). Purchased.  
 2 Macaque Monkeys (*Macacus cynomolgus*), ♂. Presented by Mrs. Stevens.
28. 1 Red and Yellow Macaw (*Ara chloroptera*). Presented by Mrs. Bancroft.  
 1 Chequered Elaps (*Elaps lemniscatus*). Purchased.  
 2 Virginian Colins (*Ortyx virginianus*), ♂ and ♀. Presented by P. L. Simon, Esq.  
 1 Dial Bird (*Copsychus saularis*). Purchased.
29. 1 Chimpanzee (*Troglodytes niger*), ♂. Deposited.  
 4 Common Adders (*Pelias berus*). Presented by W. B. Hume, Esq.  
 1 Markhoor (*Capra megaceros*), ♂. Born in the Menagerie.
30. 2 Masked Paradoxures (*Paguma larvata*). Born in the Menagerie.



- May 1. 1 Grey Ichneumon (*Herpestes griseus*), ♀. Presented by George Felstead, Esq.  
 1 Ostrich (*Struthio camelus*), ♂. Purchased.
3. 2 Mouflons (*Ovis musimon*), ♂ and ♀. Born in the Menagerie.  
 1 Black-eared Marmoset (*Hapale penicillata*), ♂. Presented by Miss Cook.
5. 1 Bay Cow-bird (*Molothrus badius*). Presented by George Wilks, Esq., C.M.Z.S.  
 4 Southern Cow-birds (*Molothrus bonariensis*). Presented by George Wilks, Esq., C.M.Z.S.  
 1 Azara's Opossum (*Didelphys azaræ*), ♂. Presented by George Wilks, Esq., C.M.Z.S.  
 1 Tree-Boa (*Corallus hortulanus*). Purchased.
6. 1 Lumpfish (*Cyclopterus lumpus*). Purchased.  
 1 Armed Bullhead (*Aspidophorus cataphractus*). Purchased.  
 1 Sordid Dragonet (*Callionymus dracunculus*). Purchased.  
 4 Greenland Seals (*Phoca grælandica*), ♂. Purchased.
7. 1 Common Sturgeon (*Acipenser sturio*). Presented by Messrs. Grove and Co.  
 1 Marmoset Monkey (*Hapale jacchus*), ♂. Presented by Robert G. Moger, Esq.
8. 1 Diana Monkey (*Cercopithecus diana*), ♂. Purchased.  
 1 Crested Porcupine (*Hystrix cristata*). Purchased.  
 1 King Vulture (*Gyparchus papa*). Purchased.  
 2 St.-Helena Seed-eaters (*Crithagra butyracea*). Purchased.  
 1 Brush-tailed Porcupine (*Atherura africana*). Purchased.  
 2 Yellow-rumped Seed-eaters (*Crithagra chrysopyga*). Purchased.  
 1 Crimson-faced Waxbill (*Pytelia elegans*). Purchased.  
 1 Common Boa (*Boa constrictor*). Purchased.  
 1 Ocelot (*Felis pardalis*), ♂. Purchased.  
 2 Weasel-headed Armadillos (*Dasypus encoubert*). Purchased.  
 2 Vieillot's Pheasants (*Euplocamus vieilloti*), ♂ and ♀. Presented by Col. A. S. Greenlaw.
9. 1 Alexandrine Parrakeet (*Palæornis alexandri*). Deposited.
10. 1 Yellow-footed Rock-Kangaroo (*Petrogale xanthopus*), ♀. Born in the Menagerie.  
 1 Bronze-winged Pigeon (*Phaps chalcoptera*). Hatched in the Gardens.
11. 1 Greenland Seal (*Phoca grælandica*), ♀. Purchased.  
 2 Spotted-sided Finches (*Amadina lathamii*). Purchased.  
 1 Cashmere Shawl-Goat (*Capra hircus*), ♀. Born in the Menagerie.  
 2 Australian Wild Ducks (*Anas superciliosa*). Presented by Capt. S. Babot.
12. 6 Variegated Sheldrakes (*Tadorna variegata*). Hatched in the Gardens.  
 1 Syrian Wild Ass (*Equus hemippus*), ♂. Born in the Menagerie.  
 1 Cinereous Sea-Eagle (*Haliaëtus albicilla*). From the Island of Saghalin. Presented by Captain Blakiston.  
 1 Brown Bear (*Ursus arctos*), ♂. From Jesso, Japan. Presented by Captain Blakiston.
13. 1 Red and Yellow Macaw (*Ara chloroptera*). Deposited.  
 1 Grey Parrot (*Psittacus erithacus*). Presented by Mrs. Ford North.  
 1 Ursine Colobus (*Colobus ursinus*), ♀. Deposited.



- May 13. 2 Peacock Pheasants (*Polyplectron chinquis*). Hatched in the Gardens.
- 3 Young Water-Ousels (*Cinclus aquaticus*). Presented by W. Dunbar, Esq.
14. 1 Pallas's Eared Pheasant (*Crossoptilon auritum*), ♂. Purchased.  
 1 Golden-headed Marmoset (*Hapale chrysomelas*). Purchased.  
 2 Alpine Choughs (*Pyrrhocorax alpinus*). Purchased.  
 2 Orange-winged Parrakeets (*Brotogeris pyrrhopterus*). Purchased.
18. 4 Olive Weaverbirds (*Hyphantornis capensis*). Purchased.  
 2 White-fronted Olive Weaverbirds (*Pyrenestes albifrons*). Purchased.  
 1 Rock-Thrush (*Petrocincla saxatilis*). Presented by Sir S. Lakeman.  
 1 Eastern Nightingale (*Luscinia major*). Presented by Sir S. Lakeman.  
 1 Spotted Ichneumon (*Herpestes auropunctatus*). Presented by C. Emery, Esq.  
 2 Greenland Seals (*Phoca grælandica*). Presented by Sir C. M. Lampson, Bart., F.Z.S.  
 1 Common Heron (*Ardea cinerea*). Presented by Mr. Alderman and Sheriff Cotton.
19. 8 Ruddy Sheldrakes (*Tadorna rutila*). Hatched in the Gardens.
20. 1 Vulpine Phalanger (*Phalangista vulpina*). Presented by F. Egerton Hine, Esq.  
 1 Stanley Crane (*Tetrapteryx paradiseus*). Purchased.  
 2 Secretary Vultures (*Serpentarius reptilivorus*). Purchased.  
 2 Aard-Wolves (*Proteles lalandii*). Purchased.  
 1 Common Otter (*Lutra vulgaris*). Presented by H. J. Rope, Esq.  
 1 Vulturine Eagle (*Aquila vulturina*). Presented by E. L. Layard, Esq., F.Z.S.
21. 1 Ursine Dasyure (*Dasyurus ursinus*). Presented by Dr. Geo. Bennett, F.Z.S.  
 1 Grey Spider Monkey (*Ateles hybridus*). Purchased.  
 4 Upland Geese (*Chloëphaga magellanica*). Hatched in the Gardens.
22. 1 Panda (*Ailurus fulgens*). Presented by Dr. Simpson.
25. 2 Peacock Pheasants (*Polyplectron chinquis*). Hatched in the Gardens.
26. 1 Bonnet-Monkey (*Macacus radiatus*), ♀. Presented by A. M. Campbell, Esq.  
 6 Common Chameleons (*Chamæleon vulgaris*). Purchased.  
 1 Red-billed Tree-Duck (*Dendrocygna autumnalis*). Purchased.  
 1 Grey-cheeked Monkey (*Cercocebus albigena*), ♀. Purchased.  
 2 Sulphur-breasted Toucans (*Ramphastos carinatus*). Purchased.
27. 2 Spotted Hyænas (*Hyæna crocuta*). Born in the Menagerie.
29. 1 White-whiskered Capuchin Monkey (*Cebus fatuellus*), ♂. Deposited.  
 2 Grey-breasted Conures (*Conurus monachus*). Purchased.  
 2 Red-bellied Conures (*Conurus vittatus*). Purchased.  
 4 Temminck's Tragopans (*Ceriornis temminckii*). Hatched in the Gardens.  
 1 Burchell's Zebra (*Equus burchellii*). Born in the Menagerie.  
 1 Sulphur-breasted Toucan (*Ramphastos carinatus*). Presented by J. C. Shircore, Esq.
30. 1 Brown Pelican (*Pelecanus fuscus*). Presented by Capt. Dow.
31. 1 Cuckoo (*Cuculus canorus*). Presented by H. Clark, Esq.



- June 1. 1 Chimpanzee (*Troglodytes niger*). Deposited.  
 2 Ursine Dasyures (*Dasyurus ursinus*). Presented by R. Firebrace, Esq., F.Z.S.  
 1 Australian Quail (*Synœcus australis*). Presented by Dr. F. von Mueller, C.M.Z.S.  
 1 Ashy-headed Goose (*Chloëphaga poliocephala*). Hatched in the Gardens.  
 2. 2 Macqueen's Bustards (*Otis macqueeni*). Deposited.  
 3. 2 Double-striped Thicknees (*Ædicnemus bistriatus*). Presented by G. D. Rowley, Esq., F.Z.S.  
 4 Getulian Squirrels (*Xerus getulus*). Purchased.  
 5. 1 Dorsal Squirrel (*Sciurus dorsalis*). Presented by J. L. Guy, Esq.  
 6. 8 Egyptian Geese (*Chenalopex ægyptiaca*). Hatched.  
 4 Ruddy-headed Geese (*Chloëphaga rubidiceps*). Hatched.  
 7. 1 Anaconda (*Eunectes murinus*). Purchased.  
 1 Egyptian Monitor (*Monitor niloticus*). Purchased.  
 1 Common Hare (*Lepus europæus*). Purchased.  
 8. 1 Red-bellied Monkey (*Cercopithecus erythrogaster*), ♂. Purchased.  
 1 Rhesus Monkey (*Macacus erythræus*), ♀. Presented by Mrs. M. Round.  
 9. 1 Red-fronted Amazon (*Chrysotis vittatus*). Purchased.  
 1 Black-tailed Parrakeet (*Platycercus melanurus*). Presented by Dr. John Cooper.  
 10. 1 Ocelot (*Felis pardalis*), ♀. Presented by Capt. Glyn, H.M.S. 'Doris.'  
 1 Eye-browed Guan (*Penelope superciliaris*). Purchased.  
 1 New-Caledonian Rail (*Ocydromus lafresnayanus*). Presented by Dr. Geo. Bennett, F.Z.S.  
 1 Blue-shouldered Tanager (*Tanagra cyanoptera*), ♂. Purchased.  
 11. 1 King Parrakeet (*Aprosmictus scapulatus*), Presented by Mr. Sercombe.  
 12. 1 Common Kestrel (*Tinnunculus alaudarius*). Presented by Miss Lucy Royle.  
 14. 1 Japanese Deer (*Cervus sika*). Born in the Menagerie.  
 15. 2 Petz's Conures (*Conurus petzi*). Purchased.  
 2 Crested Pigeons (*Ocyphaps lophotes*). Hatched.  
 16. 9 Common Chameleons (*Chamæleon vulgaris*). Presented by Capt. Thos. Waite.  
 2 Getulian Squirrels (*Xerus getulus*). Presented by Capt. Thos. Waite.  
 4 North-African Jackals (*Canis anthus*), ♂. Presented by Capt. Thos. Waite.  
 1 Ocellated Skink (*Gongylus ocellatus*). Presented by Henry Denny, Esq.  
 1 Turquoise Parrakeet (*Euphema pulchella*), ♀. Purchased.  
 1 Common Kestrel (*Tinnunculus alaudarius*). Presented by Mr. J. Stanton.  
 17. 2 Red-shouldered Weaverbirds (*Euplectes axillaris*), ♂. Purchased.  
 1 Bengalese Ichneumon (*Herpestes malaccensis*), ♂. Presented by W. Ingram, Esq.  
 2 pairs of Common Wild Ducks (*Anas boschas*). Presented by D. B. Bullen, Esq.  
 18. 1 Cape Ant-Bear (*Orycteropus capensis*), ♂. Purchased.  
 3 Summer-Ducks (*Aix sponsa*). Hatched in the Gardens.



- June 18. 3 Japanese Pheasants (*Phasianus versicolor*). Hatched.  
 13 Bamboo Partridges (*Bambusicola thoracica*). Hatched.
19. 1 Wedge-tailed Eagle (*Aquila audax*). Presented by H.R.H. the Duke of Edinburgh, F.Z.S.
20. 1 Honey-Buzzard (*Pernis apivorus*). Presented by J. Watkins Drew, Esq.
21. 3 Black-tailed Water-hens (*Tribonyx ventralis*). Hatched in the Gardens.  
 1 West-African Python (*Python sebæ*). Presented by Charles H. Cox, Esq., F.Z.S.  
 1 Greater Sulphur-crested Cockatoo (*Cacatua galerita*). Received in exchange.
22. 1 Sly Silurus (*Silurus glanis*). Presented by Messrs. Gilson and Quelch.  
 1 Sun-bird (*Eurypyga helias*). Hatched in the Gardens.  
 1 Common Bluebird (*Sialia wilsonii*). Hatched in the Gardens.  
 2 Mexican Deer (*Cervus mexicanus*), ♂ and ♀. Born in the Menagerie.  
 1 Entellus Monkey (*Semnopithecus entellus*), ♂. Purchased.
23. 1 Common Hare (*Lepus europæus*). Purchased.  
 14 Chestnut-breasted Finches (*Donacola castaneothorax*). Presented by the Acclimatization Society of Queensland.  
 1 Banded Grass-Finch (*Poëphila cincta*). Presented by the Acclimatization Society of Queensland.  
 1 Temminck's Snapper (*Macroclermys temminckii*). Deposited.
24. 4 Swinhoe's Pheasants (*Euplocamus swinhoei*). Hatched in the Gardens.
25. 1 Japanese Deer (*Cervus sika*). Born in the Menagerie.
26. 4 Bahama Ducks (*Pæcilonetta bahamensis*). Hatched.
28. 7 Undulated Grass Parrakeets (*Melopsittacus undulatus*). Hatched.  
 3 Common Adders (*Pelias berus*). Presented by Mr. Davy.  
 2 Wild Boars (*Sus scrofa*). Purchased.  
 1 Green Monkey (*Cercopithecus callitrichus*). Presented by Mrs. Haynes.
29. 1 Guacharo or Oil-bird (*Steatornis caripensis*). From Trinidad. Presented by the Hon. A. Gordon, C.M.Z.S.  
 4 Australian Wild Ducks (*Anas superciliosa*). Hatched in the Gardens.
30. 2 Tigers (*Felis tigris*). Born in the Menagerie.  
 2 Common Kingfishers (*Alcedo ispida*). Presented by J. J. Habisch, Esq.  
 2 Black-headed Parrots (*Caica melanocephala*). Deposited.  
 2 Yellow-shouldered Amazons (*Chrysotis ochroptera*). Deposited by the Hon. A. Gordon, C.M.Z.S.
- July 1. 1 Virginian Deer (*Cervus virginianus*). Born in the Menagerie.  
 1 Ortolan Bunting (*Emberiza hortulana*). Presented by Mr. J. W. Smart.  
 2 Black-headed Buntings (*Emberiza melanocephala*). Presented by Mr. J. W. Smart.  
 1 Chimpanzee (*Troglodytes niger*). Deposited.  
 1 Red-footed Falcon (*Erythropus vespertinus*). Deposited.  
 1 New-Zealand Hawk (*Hieracidea novæ hollandiæ*). Presented by J. M. Quade, Esq.  
 2. 2 Barbary Turtledoves (*Turtur risorius*). Presented by Capt. James Tough.



- July 2. 2 Moustache-Monkeys (*Cercopithecus cephus*). Received in exchange.
3. 2 Temminck's Tragopans (*Cerionis temminckii*). Hatched.  
 1 Macaque Monkey (*Macacus*, sp.). Presented by Mr. Ridgway.  
 1 Red-throated Amazon (*Chrysotis collaria*). Presented by J. W. Malcolm, Esq., F.Z.S.  
 1 Yellow-cheeked Amazon (*Chrysotis autumnalis*). Purchased.
5. 1 Eland (*Oreas canna*), ♀. Born in the Menagerie.
6. 2 Jays (*Garrulus glandarius*). Received in exchange.  
 2 Common Magpies (*Pica caudata*). Received in exchange.
7. 1 Boobook Owl (*Athene boobook*). Purchased.  
 1 Roebuck (*Cervus capreolus*), ♀. Presented by Benjamin F. Turner, Esq.
8. 1 Andaman Monkey (*Macacus andamanensis*), ♀. Presented by Capt. R. A. Brown, R.N.  
 1 Kusimanse (*Crossarchus obscurus*), ♀. Purchased.
9. 6 Mandarin Ducks (*Aix galericulata*). Hatched in the Gardens.  
 2 Hartebeests (*Boselaphus caama*), ♂ and ♀. Purchased.  
 1 Javan Chevrotain (*Tragulus javanicus*), ♀. Presented by B. C. Nicholson, Esq.  
 4 Common Foxes (*Canis vulpes*), 3 ♂ and 1 ♀. Presented by H.R.H. the Prince of Wales, F.Z.S. &c. &c.
12. 1 Gazelle (*Gazella dorcas*), ♀. Purchased.
13. 1 Coati (*Nasua nasica*), ♀. Presented by W. M. Rose, Esq.  
 1 Brazilian Mocking bird (*Minus saturninus*). Purchased.  
 1 Black Bulbul (*Pycnonotus pygæus*). Purchased.  
 1 Cat bird (*Galeoscoptes carolinensis*). Purchased.  
 2 Brown-necked Parrots (*Pæocephalus fuscicollis*). Purchased.  
 1 Pied Crow Shrike (*Strepera graculina*). Purchased.
14. 4 Black-backed Porphyrios (*Porphyrio melanotus*). Hatched in the Gardens.  
 1 Short-eared Owl (*Otus brachyotus*). Deposited.  
 1 Common Hare (*Lepus europæus*). Purchased.  
 1 Black Bear (*Ursus americanus*). Presented by G. Stanley Orred, Esq.
16. 1 Bless-bok Antelope (*Damalis albifrons*). Born in the Menagerie.  
 6 Amherst's Pheasants (*Thaumalea amherstiae*), 5 ♀ and 1 ♂. Deposited.
17. 1 Maugé's Dasyure (*Dasyurus maugæi*), ♂. Presented by Wm. H. Holmes, Esq.
19. 1 Four-spotted Opossum (*Didelphys opossum*). Purchased.  
 2 Barred-shouldered Ground-Doves (*Geopelia humeralis*). Hatched in the Gardens.  
 1 Cornish Chough (*Fregilus graculus*). Presented by J. Ashmead, Esq.  
 1 One-streaked Hawk (*Melierax monogrammicus*). Purchased.
20. 11 Japanese Pheasants (*Phasianus versicolor*). Hatched.
21. 1 Yellow-faced Amazon (*Chrysotis xanthops*). Purchased.  
 1 Wild Boar (*Sus scrofa*). Presented by L. Levinsohn, Esq.
22. 1 Crested Ground-Parrakeet (*Calopsitta novæ hollandiæ*). Presented by Miss C. Boyle.  
 1 Pair Hybrid Cats (between *Felis catus* and *F. domestica*). Presented by S. E. B. Pusey, Esq., F.Z.S.  
 1 Coati, black variety (*Nasua nasica*), ♂. Presented by Peter Campbell, Esq.  
 2 European Tortoises (*Testudo græca*). Presented by Mrs. Lee.



- July 22. 2 African Tantalus (*Tantalus ibis*). Purchased.  
 2 Saddle-billed Storks (*Xenorhynchus senegalensis*). Purchased.  
 26. 3 Glass Snakes (*Pseudopus pallasii*). Purchased.  
 27. 1 Vervet Monkey (*Cercopithecus lalandi*), ♀. Purchased.  
 1 Vulpine Phalanger (*Phalangista vulpina*), ♂. Presented by Dr. Owen Owen.  
 28. 1 Pennant's Parrakeet (*Platycercus pennantii*). Deposited.  
 2 Red Ground-Doves (*Geotrygon montana*). Hatched in the Gardens.  
 1 Common Viper (*Pelias berus*). Presented by E. P. R. Curzon, Esq.  
 1 Owen's Apteryx (*Apteryx owenii*). Presented by the Acclimatization Society of Otago.  
 29. 2 Blue Jays (*Cyanocitta cristata*). Purchased.  
 2 Pied Tanagers (*Cissopis leveriana*). Purchased.  
 2 Spotted Crakes (*Crex porzana*). Purchased.  
 2 Tiger Bitterns (*Tigrisoma brasiliense*). Purchased.  
 1 Vociferous Eagle (*Haliaëtus vocifer*). Purchased.  
 1 White-bellied Stork (*Ciconia abdimii*). Purchased.  
 2 Raccoons (*Procyon lotor*). Presented by C. Messiter, Esq.  
 1 Red Fox (*Canis fulvus*). Presented by C. Messiter, Esq.  
 1 Prairie-Marmot (*Arctomys ludovicianus*). Presented by C. Messiter, Esq.  
 1 Bonnet-Monkey (*Macacus radiatus*). Presented by Miss Geikie.  
 30. 2 American Tapirs (*Tapirus terrestris*), ♂ and ♀. Purchased.  
 1 Grey-cheeked Monkey (*Cercocebus albigena*), ♀. Purchased.  
 1 Blue Grosbeak (*Guiraca cyanea*). Purchased.  
 1 Harlequin Quail (*Coturnix histrionica*). Purchased.  
 1 Slender Loris (*Loris gracilis*), ♀. Purchased.  
 31. 3 Common Wild Ducks (*Anas boschas*). Presented by D. B. Buller, Esq.
- Aug. 2. 2 Chinese Tailed Deer (*Elaphurus davidianus*), ♂ and ♀. Presented by H.E. Sir R. Alcock, K.C.B., C.M.Z.S.  
 1 Lesser Sulphur-crested Cockatoo (*Cacatua sulphurea*). Deposited.  
 1 White-billed Parrot (*Tanygnathus albirostris*). Purchased.  
 1 Mueller's Great-billed Parrakeet (*Tanygnathus muelleri*). Purchased.  
 2 Eider Ducks (*Somateria mollissima*), ♂ and ♀. Purchased.  
 2 Alpine Choughs (*Pyrrhocorax alpinus*). Purchased.  
 1 Pileated Vulture (*Neophron pileatus*). Purchased.  
 1 Wild Cat (*Felis catus*), ♀, from Hungary. Purchased.  
 3. 1 Common Seal (*Phoca vitulina*), ♂. Purchased.  
 1 Kit Fox (*Canis velox*), ♂. Presented by G. Peacock, Esq.  
 1 Hawk-headed Parrot (*Deropterus accipitrinus*). Presented by G. Peacock, Esq.  
 1 Brown Capuchin Monkey (*Cebus apella*), ♂. Presented by G. Peacock, Esq.  
 4. 1 Feline Douroucouli (*Nyctipithecus felinus*). Purchased.  
 5. 3 Common Hares (*Lepus europæus*). Purchased.  
 6. 1 Puma, red variety (*Felis concolor*), ♀, from Demerara. Presented by the late W. D. Stewart, Esq.  
 7. 2 Snowy Owls (*Nyctea nivea*). Presented by Lord Ruthven.  
 1 Common Seal (*Phoca vitulina*), ♀. Purchased.  
 9. 1 Wheatear (*Saricola ananthe*). Purchased.



- Aug. 10. 1 Great Eagle Owl (*Bubo maximus*). Returned.  
 1 Common Barn-Owl (*Strix flammea*). Presented by H. B. Harrison, Esq.  
 1 pair Passerine Parrakeets (*Psittacula passerina*). Purchased.  
 1 Musky Parrakeet (*Trichoglossus concinnus*). Purchased.
11. 1 Bennett's Wallaby (*Halmaturus bennettii*), ♀. Deposited.  
 4 Common Turtles (*Chelonia viridis*). Presented by Lieut. C. B. Clark, R.N.
12. 5 Wonga-wonga Pigeons (*Leucosarcia picata*). Presented by the Acclimatization Society of Victoria.  
 1 Amherst's Pheasant (*Thaumalea amherstie*), ♂. Deposited.
13. 3 Common Bluebirds (*Sialia wilsoni*). Hatched in the Gardens.  
 2 Weasel-headed Armadillos (*Dasypus encoubert*), ♀. Purchased.  
 1 Pleurodele Newt (*Pleurodeles waltii*). From Spain. Presented by Lord Lilford, F.Z.S.
14. 2 Crested Curassows (*Crax alector*). Presented by Col. May.
16. 1 Huanaco (*Auchenia huanaco*), ♀. Presented by H. T. Balfour, Esq.
17. 1 Wheat-ear (*Saxicola oenanthe*), ♀. Purchased.  
 6 Undulated Grass-Parrakeets (*Melopsittacus undulatus*). Hatched.  
 1 Rufous-necked Weaverbird (*Hyphantornis texor*). Hatched.
18. 2 Javan Pea-fowls (*Pavo muticus*), ♂ and ♀. Purchased.  
 2 Marabou Storks (*Leptoptilus crumeniferus*), ♂ and ♀. Purchased.
19. 1 Brush-Turkey (*Talegalla lathamii*). Hatched in the Gardens.  
 1 St.-Helena Seed-eater (*Crithagra butyracea*). Presented by Miss Moss.  
 3 Australian Quails (*Synœcus australis*). Purchased.
20. 1 Chimpanzee (*Troglodytes niger*), ♀. Deposited.
23. 1 Garnett's Galago (*Galago garnettii*), ♂. Purchased.  
 2 Yellow Baboons (*Cynocephalus babouin*), ♂ and ♀. Purchased.
25. 2 Sun-birds (*Eurypyga helias*). Hatched in the Gardens.  
 1 Great Eagle-Owl (*Bubo maximus*). Presented by Charles Bamford, Esq.
26. 7 Garter-Snakes (*Tropidonotus ordinatus*). Presented by A. Downs, Esq., C.M.Z.S.
27. 1 Blue and Yellow Macaw (*Ara ararauna*). Presented by Samuel Linder, Esq.  
 13 Barred-tailed Pheasants (*Phasianus reevesii*). Deposited.  
 2 Temminck's Tragopans (*Ceriornis temminckii*), ♂ and ♀. Deposited.  
 1 Common Buzzard (*Buteo vulgaris*), ♀. Presented by James Hartley, Esq.  
 3 Short-headed Phalangers (*Belideus breviceps*), 2 ♂ and 1 ♀. Presented by Robert G. Batten, Esq.
28. 1 Black Bear (*Ursus americanus*), ♂. Presented by Rees Davies, Esq.  
 4 Egyptian Mastigures (*Uromastix spinipes*). Received in exchange.  
 4 Egyptian Sand-Lizards (*Psammosaurus griseus*). Received in exchange.  
 1 Tree-Boa (*Corallus hortulanus*). Purchased.
29. 2 Glossy Ibises (*Ibis falcinellus*). Purchased.  
 1 Puma (*Felis concolor*), ♂. Presented by Capt. Dow, F.Z.S.  
 2 Sparrow-Hawks (*Accipiter nisus*), ♂ and ♀. Presented by Mr. R. B. Sharpe.



- Aug. 29. 1 Cashmere Monkey (*Macacus pelops*), ♀. Presented by Rev. T. P. Methuen.
- Sept. 2. 2 Black-eared Marmosets (*Hapale penicillata*), ♂ and ♀. Presented by Mr. E. Ball.
3. 2 Common Kestrels (*Tinnunculus alaudarius*). Presented by Mr. W. Lake.
4. 1 Potto (*Perodicticus potto*), ♂. Purchased.  
1 Spanish Ibex (*Capra pyrenaica*), ♂. Presented by Major Howard Irby (74th Highlanders).  
23 Edible Sea-Urchins (*Echinus esculentus*). Presented by Mr. A. D. Bartlett.  
3 Shore-Crabs (*Carcinus mænas*). Presented by Mr. A. D. Bartlett.
5. 2 Black-tailed Water-Hens (*Tribonyx ventralis*). Hatched in the Gardens.
6. 1 Wanderoo Monkey (*Macacus silenus*), ♂. Presented by Capt. A. A. Davidson.  
2 Marmoset Monkeys (*Hapale jacchus*), ♂ and ♀. Presented by H. M. Wainwright, Esq.  
2 Red Ground-Doves (*Geotrygon montana*). Hatched in the Gardens.
7. 1 Sooty Monkey (*Cercocebus fuliginosus*), ♀. Purchased.  
4 Cuming's Octodons (*Octodon cumingi*). Born in the Menagerie.
8. 1 Wood-Pigeon (*Columba palumbus*). Presented by H. P. Hensman, Esq.  
3 Island Hen Gallinules (*Gallinula nesiotis*). Presented by E. L. Layard, Esq., F.Z.S.
9. 1 White-backed Piping Crow (*Gymnorhina leuconota*). Presented by Higford Burr, Esq.
13. 1 Common Otter (*Lutra vulgaris*). Presented by Mr. A. Fairgrieve.  
1 Egyptian Cobra (*Naia haje*). Purchased.  
9 Puff-Adders (*Clotho arietans*). Purchased.  
1 Greek Tortoise (*Testudo græca*). Presented by Mr. W. A. Jepson.  
2 Greey's Guans (*Penelope greeyi*). Presented by Robert Gardner, Esq.
15. 1 Grys-bok (*Calotragus melanotis*), ♂. Purchased.
16. 1 Leadbeater's Cockatoo (*Cacatua leadbeateri*). Presented by George M'Leay, Esq., F.Z.S.  
1 Roseate Cockatoo (*Cacatua roseicapilla*). Presented by George M'Leay, Esq., F.Z.S.  
1 Grey Crow Shrike (*Strepera anaphoneusis*). Presented by John Flexman, Esq.
18. 1 Marsh Harrier (*Circus æruginosus*). Purchased.
19. 1 Zebu (*Bos indicus*), ♀. Born in the Menagerie.
20. 2 Vulpine Phalangers (*Phalangista vulpina*), ♂. Born in the Menagerie.
22. 1 Nicobar Pigeon (*Calœnas nicobarica*). Hatched in the Gardens.  
1 Crested Pigeon (*Ocyphaps lophotes*). Hatched in the Gardens.  
1 Blue-winged Parrakeet (*Brotogerys tiriacula*). Presented by Mrs. M'Mullen.  
2 Royal Pythons (*Python regius*). Presented by Mrs. Thomas Brassey, F.Z.S.  
1 Sloth Bear (*Melursus labiatus*). Presented by Capt. A. Morrel, R.N.



- Sept. 24. 1 Sun-Bird (*Eurypyga helias*). Deposited.  
 25. 1 Black-crested Eagle (*Spizaetus occipitalis*). Purchased.  
 1 Common Peafowl (*Pavo cristatus*). Presented by Lady Cranstoun.  
 26. 1 Common Camel (*Camelus dromedarius*), ♀. Purchased.  
 1 Korin (*Gazella rufifrons*), ♀. Purchased.  
 27. 2 Servals (*Felis serval*), ♂ and ♀. Presented by J. J. Monteiro, Esq., C.M.Z.S.  
 2 Persian Gazelles (*Gazella subgutturosa*), ♀. Presented by T. Kerr Lynch, Esq., F.Z.S.  
 1 Lion (*Felis leo*). Presented by T. Kerr Lynch, Esq., F.Z.S.  
 1 Superb Crested Eagle (*Spizaetus ornatus*), ♀. From Costa Rica. Presented by Capt. Dow, F.Z.S.  
 28. 1 Patas Monkey (*Cercopithecus ruber*). Presented by Clement P. Penny, Esq.  
 29. 1 Two-toed Sloth (*Choloepus hoffmanni*?), from Panama. Purchased.
- Oct. 1. 1 Bengalese Leopard Cat (*Felis bengalensis*). Presented by Charles J. Sturt, Esq.  
 2. 1 Pair Swinhoe's Pheasants (*Euplocamus swinhoii*). Deposited.  
 2 Pallas's Eared Pheasants (*Crossoptilon auritum*). Deposited.  
 2 Rough-legged Buzzards (*Archibuteo lagopus*). Presented by Capt. Stuart.  
 4. 1 West-African Python (*Python sebæ*). Presented by Mr. C. Czarnikow, F.Z.S.  
 6. 1 Cape Ant-Bear (*Orycteropus capensis*), ♀. Purchased.  
 1 Aard Wolf (*Proteles cristatus*). Purchased.  
 7. 2 Common Chameleons (*Chamaeleon vulgaris*). Presented by Mr. G. Bashford.  
 8. 1 Philantomba Antelope (*Cephalophus maxwellii*). Born in the Menagerie.  
 1 Mooruk (*Casuarus bennettii*). Purchased.  
 9. 1 Grey Parrot (*Psittacus erithacus*). Presented by Miss Paget.  
 11. 1 Common Buzzard (*Buteo vulgaris*). Presented by John Susini, Esq.  
 2 Horned Vipers (*Cerastes hasselquistii*). Received in exchange.  
 12. 4 Sand-Asps (*Vipera ammodytes*). Received in exchange.  
 1 Grizzled Spider Monkey (*Ateles grisescens*), ♂. Purchased.  
 1 Macaque Monkey (*Macacus cynomolgus*), ♂. Presented by the Rev. F. E. Durnford.  
 13. 1 Cinereous Sea-Eagle (*Haliaeetus albicilla*). Presented by R. Albay, Esq.  
 1 Squirrel Monkey (*Callithrix sciureus*), ♀. Presented by F. G. H. Price, Esq.  
 14. 1 Bonnet-Monkey (*Macacus radiatus*), ♂. Presented by Mr. Lucas.  
 1 Macaque Monkey (*Macacus cynomolgus*), ♂. Deposited.  
 2 Axis Deer (*Cervus axis*), ♂ and ♀. Presented by Mrs. Morison.  
 3 Crested Ground-Parrakeets (*Calopsitta novæ hollandiæ*). Presented by Dr. J. S. Tulloch, F.Z.S.  
 15. 1 Chimpanzee (*Troglodytes niger*), ♀. Deposited.  
 2 Caspian Emys (*Emys caspica*). Purchased.  
 2 Moccasin Snakes (*Tropidonotus fasciatus*). Purchased.  
 1 Say's Snake (*Coronella sayi*). Purchased.



- Oct. 16. 2 Eye-browed Guans (*Penelope superciliaris*). Presented by Edward Harris, Esq.  
 1 Bay Antelope (*Cephalophus dorsalis*), ♀, from the Gold Coast. Presented by C. B. Mosse, Esq.  
 1 Two-spotted Paradoxure (*Nandinia binotata*), from the Gold Coast. Presented by C. B. Mosse, Esq.  
 1 Brush-tailed Porcupine (*Atherura africana*), from the Gold Coast. Presented by C. B. Mosse, Esq.  
 17. 1 Spotted Cavy (*Cælogenys paca*). Presented by Mrs. Hairby.  
 18. 1 Vervet Monkey (*Cercopithecus lalandii*). Presented by the Rev. H. H. Woods.  
 19. 1 Grey Ichneumon (*Herpestes griseus*). Presented by Capt. Spencer.  
 1 Bonnet-Monkey (*Macacus radiatus*). Presented by Mr. J. Hutchinson.  
 20. 1 Laughing Kingfisher (*Dacelo gigantea*). Presented by W. Worsfold, Esq.  
 22. 1 Common Barn-Owl (*Strix flammea*). Presented by E. H. Denison, Esq.  
 23. 1 Macaque Monkey (*Macacus cynomolgus*). Presented by Mrs. Goodall.  
 25. 1 Vervet Monkey (*Cercopithecus lalandii*). Deposited.  
 1 Yellow Baboon (*Cynocephalus babouin*). Deposited.  
 2 Ring-necked Parrakeets (*Palæornis torquata*). Presented by Mr. J. Keene.  
 27. 1 Common Barn-Owl (*Strix flammea*). Presented by Thomas Johnson, Esq., F.Z.S.  
 1 Kit Fox (*Canis velox*). Presented by A. Shoobridge, Esq.  
 30. 1 Green Glossy Starling (*Lamprocolius chalybeus*). Presented by N. L. Austen, Esq., F.Z.S.  
 1 Black Bear (*Ursus americanus*). Deposited.
- Nov. 1. 1 Clapperton's Francolin (*Francolinus clappertonii*). Purchased  
 1 Collared Fruit-Bat (*Cyonycteris collaris*). Purchased.  
 1 Quebec Marmot (*Arctomys empetra*). Presented by Norman Kerr, Esq., M.D.  
 2. 1 Rhesus Monkey (*Macacus erythræus*), ♂. Presented by J. Stillwell, Esq., F.Z.S.  
 1 Wonga-wonga Pigeon (*Leucosarcia picata*). Presented by C. H. Wigram, Esq.  
 3. 1 Great Eagle-Owl (*Bubo maximus*). Received in exchange.  
 2 Canadian Beavers (*Castor canadensis*). Deposited.  
 2 Canada Geese (*Bernicla canadensis*). Deposited.  
 1 Duck-Falcon (*Falco anatum*). Deposited.  
 4. 1 Common Jackal (*Canis aureus*), ♂. Presented by Captain Gallicher.  
 1 Coati, brown variety (*Nasua nasica*), ♀. Presented by Capt. J. Thwaites.  
 5. 1 Indian Leopard (*Felis leopardus*), ♀. Presented by Capt. Arthur Hazlerigg.  
 1 South-American Rat-Snake (*Spilotes variabilis*). Presented by Mr. Hounslow.  
 9. 1 Brazilian Hang-nest (*Icterus jamaicæ*). Purchased.  
 10. 1 Great Eagle-Owl (*Bubo maximus*). From China. Presented by Dr. Somerville.  
 11. 1 Red and Blue Macaw (*Ara macao*). Presented by J. P. Wilson, Esq., F.Z.S.



- Nov. 11. 1 Blackbird (*Turdus merula*). Presented by the Hon. H. M. Best.  
 3 Chinese Silk Fowls (*Gallus domesticus*). Presented by Lady Alcock.
12. 2 Laughing Kingfishers (*Dacelo gigantea*). Presented by the Acclimatization Society of Queensland.  
 2 Indian Leopards (*Felis leopardus*), ♂ and ♀. Presented by Henry Bayley, Esq.
15. 1 Kingfisher (*Alcedo ispida*). Presented by Mr. J. W. Harrison.
16. 2 Common Hares (*Lepus europæus*). Purchased.  
 1 Barraband's Parrakeet (*Polytelis barrabandii*). Presented by George Cooke, Esq.
17. 1 Cape-Crowned Crane (*Balearica regulorum*). Presented by R. R. Juler, Esq.  
 1 Vervet Monkey (*Cercopithecus lalandii*), ♀. Presented by R. R. Juler, Esq.  
 1 Chacma Baboon (*Cynocephalus porcaricus*), ♂. Presented by Alexander Sinclair, Esq.  
 1 White-tailed Gnu (*Catoblepas gnu*), ♂. Deposited.  
 2 White-handed Gibbons (*Hylobates lar*), ♂ and ♀. Presented by G. S. Rodon, Esq.
18. 1 Emu (*Dromæus novæ hollandiæ*). Presented by the Viscount Hill, F.Z.S.  
 1 Crested Ground-Parrakeet (*Calopsitta novæ hollandiæ*). Hatched in the Gardens.
19. 1 Grison (*Grisonia vittata*), ♀. Purchased.
20. 1 Palm-Squirrel (*Sciurus palmarum*). Presented by J. Hill, Esq.  
 1 Macaque Monkey (*Macacus cynomolgus*), ♂, from Sumatra. Presented by L. T. Hyde Martin, Esq.
22. 1 Water-Rail (*Rallus aquaticus*). Purchased.  
 1 Mountain-Finch (*Fringilla montifringilla*). Purchased.
23. 2 Nylghaies (*Portax picta*). Born in the Menagerie.  
 1 Variable Skunk (*Mephitis varians*). Purchased.  
 1 Pennsylvanian Buzzard (*Buteo pennsylvanicus*). Purchased.
24. 1 Vervet Monkey (*Cercopithecus lalandii*), ♂. Presented by C. S. Robinson, Esq.
25. 1 Japanese Dove (*Turtur chinensis*). Received.
30. 1 Bennett's Wallaby (*Halmaturus bennetti*), ♀. Presented by R. C. Ross, Esq.
- Dec. 4. 1 White-fronted Capuchin Monkey (*Cebus albifrons*), ♀. Deposited.  
 4 Yellow-footed Water Tortoises (*Emys flavipes*). Presented by the Rev. Basil Wilberforce.  
 2 Laniarian Water-Tortoises (*Emys laniaria*). Presented by the Rev. Basil Wilberforce.
6. 1 Bonnet-Monkey (*Macacus radiatus*), ♀. Presented by J. Norris, Esq.  
 1 Red Kangaroo (*Macropus rufus*). Born in the Menagerie.  
 1 Common Genet (*Genetta vulgaris*). Deposited.
7. 1 Stock-Dove (*Columba ænas*). Presented by John Attlee, Esq.  
 1 Rock-Pigeon (*Columba livia*). Presented by John Gould, Esq., F.Z.S.
8. 2 Clapperton's Francolins (*Francolinus clappertonii*). Presented by Capt. W. H. Strachan.



- Dec. 9. 1 Honey-Buzzard (*Pernis apivorus*). Presented by James D. Nicol, Esq.
10. 2 Wigeons (*Mareca penelope*). Purchased.
11. 1 Eland (*Oreas canna*). Born in the Menagerie.
- 1 Grey Parrot (*Psittacus erithacus*). Presented by G. A. Wilde, Esq.
- 1 Black-billed Tree-Duck (*Dendrocygna arborea*). Purchased.
13. 1 Common Boa (*Boa constrictor*). Purchased.
- 1 Globose Curassow (*Crax globicera*), ♀. Purchased.
- 1 Ocelot (*Felis pardalis*), ♂. Purchased.
- 1 White-fronted Capuchin Monkey (*Cebus albifrons*), ♂. Purchased.
- 3 Tigers (*Felis tigris*). Born in the Menagerie.
16. 1 Ouakari Monkey (*Pithecia ouakari*), ♀. Deposited.
17. 1 Common Paradoxure (*Paradoxurus typus*). Deposited.
- 1 Macaque Monkey (*Macacus cynomolgus*), ♂. Presented by Mrs. W. Goslett.
18. 1 Hybrid Gayal (*Bos indicus*, ♂, and *Bos frontalis*, ♀). Born in the Menagerie.
20. 2 Macaque Monkeys (*Macacus cynomolgus*), ♂. Presented by Mr. R. Low.
- 3 Water-Rats (*Arvicola amphibius*). Presented by Mr. T. C. White.
21. 1 Laughing Kingfisher (*Dacelo gigantea*). Presented by Dr. Mueller, C.M.Z.S.
- 1 Black-backed Porphyrio (*Porphyrio melanotus*). Presented by Dr. Mueller, C.M.Z.S.
23. 1 Grey Ichneumon (*Herpestes griseus*). Presented by Mr. J. W. Batten.
- 3 Slaty Egrets (*Egretta gularis*). Purchased.
29. 1 Common Badger (*Meles taxus*). Deposited.





LEPUS HAINANUS.

M & N Hanhart. imp.



mud. The native name is *Baramoonda* or *Baramoondi*. We know as yet nothing about its habits, or the metamorphoses the young undergo; and I have been informed that the specimen from which the present description is taken is by no means a large one. Mr. Forster tells me that he has heard of specimens taken in the Dawson fully 6 feet in length.

## 2. On the Mammals of Hainan.

By R. SWINHOE, F.Z.S.

(Plate XVIII.)

On the 9th of December, 1869, I had the pleasure of reading before the Society a paper on the Cervine Animals of Hainan. I now desire to give a list of the remaining Mammals that I saw or heard of during my visit to that island.

1. BLACK APE. *Hylobates pileatus*, Gray, P. Z. S. 1861, p. 136, pl. XXI. ? *Wooyuen* of the Chinese of Hainan.

In the Chinese Gazetteer of the Kiungshan district of Hainan I found among the list of Mammal products of the island a species of Gibbon thus described:—"Yuen. Male black, female white; like a Macaque but larger, with the two forearms exceedingly long. Climbs to tree-tops and runs among them backwards and forwards with great agility. If it falls to the ground, it remains there like a log. Its delight is in scaling trees, as it cannot walk on the ground. Those desiring to rear it in confinement should keep it among trees; for the exhalations of the earth affect it with diarrhœa, causing death; a sure remedy for this, however, may be found in a draught made of the syrup of fried Foo-tsze (seeds of *Abrus precatorius*, Linn.)." An extract from the work *Pun Yu liang che* is here inserted, giving the various Yuens known to the author:—"There are three kinds of Yuens—the Golden-Silk Yuen, which is yellow, the Jade-faced Yuen, which is black, and the Jet-black Yuen, which has the face also black. The Golden-Silk and the Jade-face are both difficult to procure." The Gazetteer then continues:—"Hainan has also the Rock-Yuen. It is small, about the bigness of one's fist. If allowed to drink water, it grows in size. This is also called Black Yuen, and is now likewise difficult to obtain."

In a later edition of the Gazetteer the following is added:—"From its love for climbing and its mild disposition it is called *Yuen*" (two meanings of the phonetic part of the character). The work *Pe-ya* remarks, "The Yuen does not usually walk along the ground;" the Gazetteer therefore observes that it cannot walk; but those that have lately kept it in confinement have noticed that it occasionally drops on to the ground of its own inclination, and runs backwards and forwards in as lively a manner as the Meshuy [*Loris gracilis* (Shaw)]. We consequently cannot accept the statement in the Gazetteer.



Du Halde (Description de la Chine, A.D. 1735, tome i. p. 230), in an account of the natural productions of Hainan, writes:—"Among the animals that the island produces is seen a curious species of Great Black Ape, whose physiognomy somewhat approaches the human face; so well are the features marked; but this species is rare."

Having learnt of the existence of this Black Ape in Hainan, I naturally never ceased to inquire after it. Every one knew that such an animal did exist, and many had seen it; but they all spoke of the great difficulty of keeping it alive. At Taipingsze (Central Hainan) the wonderful stories that were told about it showed that the Yuen was not often seen there. The magistrate of that district assured me, with a serious face, that it had the power of drawing into its body its long arm-bones, and that when it drew in one arm it pushed out the other to such an extraordinary length that he believed the two bones united in the body; and he said that the bones of the arm were used for chopsticks. At Lingshuy (S.E. Hainan) the magistrate knew the animal and had kept it alive. His military colleague was in the hill-districts, but he would be back in a few days; and if we could wait, the magistrate thought he could get us a live specimen of the Ape. At all events, he would procure the animal and take it with him for us to Canton, whither he hoped to go before long. We could not, of course, wait, and we never heard of the mandarin or his good intentions again. At Nychow (S. Hainan) the commodore's secretary told me that only a few days previous to our visit he had had one alive, but that it had died, and he had had it buried. At my request he had the remains looked for. The top of the skull was all that was found; the dogs had destroyed the rest. He gave me this fragment, as also a pair of *ulnæ* of an older animal, which he was going to turn into chopsticks (the Chinese "knife and fork," so to speak). On our return to the capital of Hainan a rumour reached us that one existed in confinement in the city. The admiral there took the matter in hand and did his best to secure it for us. But the rumour was false; no such animal could be found; so we had to leave Hainan with only the fragments above mentioned of this much desired Wooyuen.

The portion of the skull obtained is that of a very young animal, and is therefore of not much value for determining the species. But the *ulnæ* are apparently adult, and are certainly those of a species of *Hylobates*.

Length of ulna of adult 11·4 inches.

On the 9th of April, 1861, a paper was read by Dr. J. E. Gray before this Society on a collection of Mammals &c. made by M. Mouhot in Cambodia (P. Z. S. *l. c.*), in which a species of *Hylobates* (*H. pileatus*) was described from an island off Cambodia. There is a fine stuffed group of this in the Mammal Gallery of the British Museum, showing the varieties of colour spoken of by the Chinese author, which, as Dr. Gray points out, are due to age and sex. This species from Cambodia must be closely related to, if not identical with, the Wooyuen of Hainan.

The jet-black Rock-Yuen referred to in the Gazetteer may possibly

be *Presbytes maurus* (Schreber). There is a specimen of this in the British Museum, brought from Canton by Mr. J. Reeves.

2. THE REDDISH-GREY MONKEY. *Macacus erythræus* (Schreber).

Du Halde (*op. cit.*) says that in Hainan "there are Grey Monkeys, which are very ugly and very common." The Chinese Gazetteer has the following:—"How (or Monkey). The *She-show* (Notes on Animals) states that the Monkey has no stomach, but digests its food by jumping about. According to ancient authors, *Kiungchow* abounds in Monkeys, and its people make a trade by selling young ones."

About the jungles of Nychow (S. Hainan) Monkeys were very common. On our landing, abreast of the ship we saw a large party of them on the beach, which at once retired into a grove above high-water mark. We watched them running along the boughs of the trees and jumping from branch to branch. The discharge of a fowling-piece soon made them scurry away into the thicket; but every now and again their heads would appear from the higher bushes watching the movements of the enemy. At last, when they observed that our presence implied actual danger to themselves, they climbed the hills and posted themselves about conspicuous rocks, where they chattered and grunted out of danger. Their cries were very like those of *Macacus cyclopis*, mihi, of Formosa. In the neighbourhood of Nychow city we found a large number of them in a thick wood that surrounded the hovel of a *Le* native, and one of our party succeeded in knocking over a fine female with a cartridge. Its irides were yellowish brown tinged with green. Eyes somewhat oval. Face long, narrow, with a somewhat projecting mouth; the skin tinged with reddish yellow, and sprinkled with short silky buff-coloured hair, longer and coarser on the lips, chin, and cheeks. A few long black hairs were scattered on the centre of the forehead and on the space beneath the eyes. The ear was well developed, and thinly clothed with hair.

*Skull*, ♀.—The mouth projects 1 inch in front of the line of the orbital ridge. Height of the skull, from top of frontal bone to angle of the lower jaw, 2·6 inches; from orbital ridge to the same 2·43; length of lower jaw 2·15; hind corner of malar arch to front of incisors 2·45; from ditto to occipital crest 1·5; greatest diameter of rounded orbit ·9; breadth of skull, from one malar arch to the other, 2·6; across base of brain-case 2·25. Nasal aperture shaped like a subverted cone; vertical length ·65, greatest breadth ·42. Central pair of incisors of upper jaw about one-third larger than those of lower. Only fourteen teeth in each jaw; the four hind molars not yet acquired. The frontal bone slopes rapidly backwards from the orbital ridge, rising only a little in its centre, and thus leaves a very inclined forehead.

Vertical length of ear 1·3, breadth ·9; bare palm 1·85 long, 1·1 broad; middle finger 1·2 long; length of sole 3·2, breadth 1·5.  
Length of body 15 inches; of entire arm to tips of fingers about



10; of leg about 11; of tail 7, thin, with harsh adpressed hair projecting  $1\frac{1}{2}$  inch beyond tip of bone.

The short coarse hair of the head commences from the orbital ridge, leaving no forehead. Head, arms, and back olive-grey, rufescent on the first and last, browner on the arms. Fingers clothed to end of first digits, the rest bare and fleshy-brown in colour, with a few scattered hairs and long brown claw-like nails; basal portions of the hair bluish grey. Under neck, breast, and belly dingy yellowish. Rump, thighs, and base of tail yellowish chestnut; yellowish brown on legs, feet, and rest of tail. Toes covered with longish hairs. Buttocks bare—with a bright red callosity on each side, of an irregular oval form, with the smallest end downwards, 1 inch long by .6 in greatest breadth.

The Chinese General at Nychow (S. Hainan) gave me a live young specimen of this species; but, as it had had its tail chopped off, I did not trouble to have it forwarded to England.

Judging from the single adult female brought home by me, the Hainan Monkey does not appear to be separable from the *Macacus erythræus* (Schreber) of Bengal, of which there are many examples in the Society's Gardens.

### 3. HOUSE-BAT. *Vesperugo abramus* (Temm.) [*V. akokomali*], Monograph. de Mamm. t. ii. p. 232.

I only procured one small Bat at Hainan—the species which roosted under the eaves of the house in the city wherein I was quartered. Dr. Peters, of Berlin, has kindly determined the species. It is a common House-bat in Nagasaki, Japan.

The Gazetteer places the Bats at the end of the list of birds, as is usual with Chinese authors, and says, "Peenfoo, or Bat, shaped like a Mouse, has thin flesh-wings uniting the four legs and extending to the tail. In winter stows away; in summer comes out. In daytime lies prostrate; in night flies. One name for it is Foo-yeh, or Belly-wings. It is now called the Feishoo, or Flying-mouse."

### 4. ASIATIC CIVET. *Viverra zibetha*, L.

The Indian Civet occurs in China from Canton to Shanghai. I have not detected it in Formosa. In Hainan I procured two flat skins at *Lingmun* (Central Hainan), a place of barter between the Chinese and the independent *Le*. One is that of a full-sized animal, the other of one about two-thirds grown. The younger animal is blacker between the shoulders, with distinct markings on the sides and rump. In the older animal these markings have almost entirely disappeared. This is mentioned in the Gazetteer as the *Heangle*, or Fragrant Fox.

### 5. THE LITTLE CIVET. *Viverricula malaccensis* (Gmelin).

I obtained a skin of this animal at the same place as the last. Its black markings are somewhat confused. It is a common species in South China, as well as in Formosa. The Gazetteer calls it the *Mao-hwa-le*, or Fox with cat-like markings.

6. THE MUNGOOS. *Herpestes*, sp.?

One evening at Kiungchow I observed a Mungoos running along a bank outside the city wall. Later on I saw a skin of apparently the same species hanging up in a garden at Shuyweisz (Central Hainan) to serve as a scarecrow. Its hair was yellowish grey mottled with black. I cannot from recollection identify the species. I have not noted any species of *Herpestes* in China; but Dr. Gray has described an *Herpestes rutilus* from Cambodia (P. Z. S. 1861, p. 136). The Mungoos is, I think, the *Cha-le* of the Gazetteer.

7. THE CLOUDED TIGER. *Felis macrocelis* (Temm.). *Neofelis macrocelis*, Gray, P. Z. S. 1867, p. 266.

The skin of this Cat was shown to me in the mountains as having been procured in that neighbourhood; and I was told that the true Leopard also occurred in Hainan. The Hainan Gazetteer admits both species. It says, "Pao, or Leopard, resembling a Tiger in form, with white face and round head. Those with spots like cash (Chinese coin) are called the 'Golden-cash Leopard' (*Leopardus varius*); those with spots shaped like the mint-leaf are called 'Mint Leopard' (*L. macrocelis*). They dread Snakes. The poet Hwai Nantsze has the following couplet:—'Snakes command the Leopard to stand: all creatures have their masters.'"

8. THE MUSKY TREE-CIVET. *Helictis moschata*, J. E. Gray, P. Z. S. 1830, p. 94; 1865, p. 153.

I have but one skin from Hainan, which wants the large white spot between the eyes. The white line from between the ears to beyond the shoulders is narrow and indistinct. The dark parts of the head are brown, without any tinge of blackish. Hind neck, front of fore and hind legs plain brown, without the white grizzly appearance; the brown is darker on the hind neck and between the shoulders; the down at the root of these hairs light brownish buff. The under parts, cheeks, and ears are pale buff, deeper-coloured on the down beneath. Whiskers brown; a few of the shorter ones white.

The British Museum has a specimen from Canton, which is coloured like ours and wants the nasal white spot.

9. THE CHINESE OTTER. *Lutra chinensis*, Gray.

Skin of an animal about half-grown. Hair short, with down at roots. Upper parts brown, with down of lighter shade; the brown extending to the muzzle, down the front of the legs over the toes; tail the same colour. Sides of face and underparts generally brownish white, with light-buff-brown down. Ears small and rounded, edged with brownish white; the whiskers about the muzzle and face the same colour. Claws light brown. This seems to be the same as the Otter found throughout South China, which Dr. J. E. Gray has distinguished from the Indian Otter (*L. indica*, Gray).

"*Tà*, like a Dog, but with a bristly mouth, hair fine; enters water without getting wet; delights in catching fish."—*Gazetteer*.



10. THE CLAWLESS OTTER. *Aonyx leptonyx* (Horsf.). *A. horsfieldi*, Gray, Mag. Nat. Hist. i. p. 580 (1837).

I heard of a second species of Otter in Hainan that lived among the mountains. The Gazetteer speaks of it thus:—"There is a race produced by the mating of the common Otter with the female *Yuen* (*Hylobates*), called the *Cha-kia* (Mountain-Otter). Their bones are found in caverns, and yield an antidote to the poison used on arrow-heads by the savage tribes. People wounded by arrows grind to powder a small quantity and apply it to the wound; the powder at once stops the effect of the poison." I procured three skins of this animal at the trading-station above referred to, and saw at once that it was quite distinct from the common Otter.

Two of the skins are of adults, the third of an animal about two-thirds grown.

There appear to be two groups of Otters with minute pointless claws classed under the genus *Aonyx*, the one to be distinguished from the other by longer and more fully webbed toes. To the former of these belong *Lutra leptonyx*, Horsf., from Java, and *Aonyx horsfieldi*, Gray, from Malacca; which two Dr. J. E. Gray subsequently united as *Aonyx leptonyx* (P. Z. S. 1865, p. 130). To the latter belong the *Lutra indigitata*, Hodgs., from Nepaul, and certain specimens in the Museum from Madras.

My Hainan skins agree in the form of the foot and in the texture of the fur with the fine specimen from Wellesley (Malacca) on which Dr. Gray founded his *Aonyx horsfieldi*; but the tail in the Hainan race is much longer, and it wants the pure white throat of the other, and differs also in the tone of its brown colouring. The skull of the Malacca specimen is in the skin. The Hainan race appears to me to be distinct from this, apparently, its nearest ally; but it is impossible to establish a species of Otter without a comparison of skulls, and I have none of the Hainan kind. I will therefore content myself with giving a description of the appearance of the skins.

*Adult.* General colour rich brown, except the throat, underneck, and breast, which are whitish, the down of the latter parts being light brown. Hairs shorter and the down more abundant than in *Lutra chinensis*. Down of the upper parts the same rich brown on surface as the hairs, whitish at base. Ears small and oval, the same colour in front and behind as the back, with a pale outer edge. Muzzle and cheek-whiskers stiff and brown. Length from muzzle to root of tail 20 inches; length of tail 13 inches; from ear to eye 2 inches, from eye to nostril 1.25. The hind feet alone are remaining; their claws are without points, and truncated, the toes are well webbed, and there is a broad hollow space between the sole-pads and the ends of the toes. Sole-pad to tip of fourth toe .9; length of sole 1.9, greatest breadth .75.

The young animal is softer and washed with buff throughout. Its ears have no light edging; and its throat, underneck, and breast are light brownish chestnut. Its whiskers are blacker.

From *L. chinensis* the Hainan *Aonyx* differs in the texture and

colour of its fur, in its broader and flatter ear, its minute abrupt nails, and its much smaller size.

By its long well-webbed toes and shape of underfoot it approaches *Lutra*; but in the blunt form of the claws it is a true *Aonyx*. The first toe of the hind foot is proportionally much longer than in *L. chinensis*; its second and fifth are nearly equal, reaching to the middle of the second digit of the third and fourth toes, which are also nearly equal in length. The immature skin has the right hind foot remaining, which shows the same build of toes and nails.

While at Amoy in 1867 I procured a live Otter, from a ship which brought it from Saigon, Cochinchina. When alive it was very tame, and followed its keeper about like a Dog. It was handled and caressed without its ever attempting to bite; but when put into a cage, or otherwise confined, it uttered a loud unceasing cry, which was most annoying. From the shortness of its head and its small size it was distinguishable at a glance from the common Chinese species. It would eat almost any thing in the way of food. This specimen has the peculiar short claws of *Lutra leptonyx* of Horsfield, but has a shorter, deeper-brown fur, and diminutive toes. Dr. J. E. Gray has examined the skull, and pronounced it not to differ from that of a specimen from India, figured in P. Z. S. 1865, p. 130; and its external form, I find, agrees with that of skins of the short-toed race from Madras in the British Museum. Dr. Jerdon (Mamm. of India) does not separate the Indian *Aonyx* from that of Java; no more does Dr. J. E. Gray, though the latter considers *A. indigitata* (Hodgs.), of Nepal, distinct. Unfortunately, there is no skull of the Nepalese animal in the Museum; but the skin there has a similar foot to that of the Madras Otter above referred to, but differs in being paler with lighter underparts.

Short-toed Otter from Saigon, ♂. Length 26 inches; tail  $9\frac{1}{2}$  length of head 4, from ear to ear across head 3, eye (outer angle) to eye across head 1.1; fore leg (shoulder to tip of toes) 7.8, ulnar joint to tip of toes 4.25; hind leg 9, tibial joint to tip of toes 3.4; sole of fore foot 1.25, from sole to tip of fourth toe beyond .4, breadth of sole .75; length of hind sole 1.6, toes beyond .5, breadth of hind sole .65. Toes imperfectly webbed.

Lips, cheeks, sides of neck, throat, and face-bristles buff-white. The rest of the fur dark brown, paler on the underparts, and much so on the chest. Down short and close, yellowish or buff-white on the lighter parts, browner on the upper or darker parts. Pelage very short and glossy. Ears small and rounded, covered with short hair. Hair on fore feet extremely short, on tail short and close.

#### 11. THE TIBETAN BLACK BEAR. *Ursus tibetanus* (F. Cuv.).

A large black shaggy skin was shown me in Hainan as having been taken from an animal in that island. I judged it to be of this species rather than of *Ursus malayanus*, Horsf. Bears are shot with poisoned arrows by the wild tribes of the mountains. The Hainan Gazetteer has the following passage:—"Heung [or Bear] is fond of climbing trees and panting. Its gall in spring is in its heel, in



summer in its belly, in autumn in its left paw, in winter in its right paw. About its heart there is a white fat like jade, the taste of which is extremely fine; this is usually called 'Bear's white.' In winter the Bear lies torpid and does not eat. When hungry it licks its own paws, and thence the goodness in the paws.

"The Gazetteer of Kiungchowfoo says that Hainan produces Pig-bears, Dog-bears, Horse-bears, and Man-bears, alike in the body but differing in the head. Horse-bears are very large. Man-bears are not often seen.

"The old authors say that the Bear has great strength and is given to devouring children. The Le men attack and capture them, a whole tribe uniting in the attack. Where Bears are plentiful the place has no peace. The gall-bladder is of a transparent colour, like rice-grains, and if stuck through with grass-stalks and put into water the best kinds will spin round quite fast. These are good for dissolving all poisons."

12. THE MUSK-RAT. *Sorex myosurus*, Pall.

The Musk-rat was common in the houses in the capital city, and I was often disturbed in my room at night by its clinking note. It is found in all the large towns in South China and Formosa, being transported about in junks with the cargo.

13. SWINHOE'S WHALE. *Balenoptera swinhooi*, J. E. Gray, P. Z. S. 1865, p. 725.

I had heard much of the Whale-fisheries in the Hainan seas, and was in hopes that we should see some of the operations in connexion with them; but the season had passed. We saw, however, one or two large Whales off the west coast of Hainan. We made inquiries about their bones at every fishing-port we touched at, but only succeeded in getting one rib, which is now in the British Museum. It was the only remnant of a Whale that had been captured by some fishermen on the west coast of Hainan. The oil of the animal had been melted down, the flesh eaten, and the rest of the bones chopped up for manure.

This large Chinese Rorqual appears to spend its winter in the seas about Hainan and in the Gulf of Tonquin. It must there produce its young; for in May it is seen with its calf in the Namoa Straits (near the port of Swatow), and remains in that neighbourhood and about the Formosan channel till the north-easters set in at the end of October, when it wends south-westwards again.

A good account of the pursuit and capture of this species is given in the 'Chinese Repository' of November 1843, Art. IV., "Notices of the Whale Fishery in the Chinese Seas, as conducted by the inhabitants of the coasts."

14. RED-BELLIED SQUIRREL. *Sciurus castaneiventris*, Gray, Cat. Mamm. Brit. Mus. 1843, p. 142.

*S. erythraeus*, Pall.; Swinh. Mamm. of Formosa, P. Z. S. 1862, p. 11. Length of body, from snout to root of tail,  $7\frac{1}{2}$  inches; length of

tail to tips of hairs at end 9 inches. Underside of legs, breast, and belly deep chestnut, in some rich and glossy, in others dull and inclined to maroon colour; the chestnut distinctly divided from the upper colour, and not blending with or shading into it. In some the chestnut extends to the throat, in others it is entirely wanting there; others, again, have it in greater or less extent. The amount of chestnut on the underparts also varies. In one of my specimens this colour springs from the pit of the arm and runs to the base of the thigh, thus ranging on either side of the underparts in two broad distinct lines; a second specimen has these lines blending across the belly. The hair of the upper parts is yellowish olive-grey, fretted with black, each hair being banded alternately with black and yellowish olive-grey, having the latter colour at the tip in the hair of the sides, but the black at the tip in the hair of the back. The long hairs of the tail are similarly, but more broadly, banded, the yellowish grey becoming nearly white towards the end of the tail, and the black conspicuous. The tail in all except one of my specimens is bushy. In this one the hairs are worn short, and the apical half of the tail has the appearance of being banded alternately with black and yellowish grey. Ears small and somewhat angular. Moustache-bristles black. Iris deep blackish brown. Toes blacker than the general colour. In the colouring of the upper parts some specimens are blacker and glossier, some greener in the olive tint, and some washed with chestnut-buff.

This Red-bellied Squirrel, which I first got in Formosa, I have since found in the Fokien mountains. In Hainan it was common about the gardens under the north wall of Kiungchow city; and I also met with it in almost every place that we visited, both in the interior and along the coast. In one place, on the 26th of March, I discovered its nest in a small tree near a village. It seemed in every respect like the nest of our Red Squirrel at home. It contained one half-grown young one, which jumped out and escaped.

The Gazetteer calls this Squirrel "The *Too-shoo* (or Poisonous Rat), of a size larger than a Rat, with a bushy tail. Bites the arca-nuts."

#### 15. SMALL STRIPED SQUIRREL. *Sciurus m'clellandi*, Horsf.

Length of body  $5\frac{1}{4}$  inches; tail to end of hairs  $5\frac{1}{2}$ , Rat-like, with hair longer than on the body, an inch long at the tip. Upper fur and tail yellowish brown, lightly freckled with blackish, the black predominating on the tail. Back with a central black line extending from between the shoulders to the bend of the rump; on each side of it a light indistinct yellowish-brown stripe, followed laterally by one of chestnut-brown, then by one of light yellowish buff, and lastly by another of chestnut-brown. Ears small, angular, black on back, and tipped on the hind side of the apical angle with longish white hairs. Underparts dingy whitish buff, with smoke-grey bases to the hairs; the bases to the hairs of the upper parts much deeper grey. Some specimens are washed on the upper parts with chestnut, richly on the rump; others are blacker, with the dorsal stripes



blended. The amount of black on the tail also varies. The underparts of some are duskier, of others tinged with rose-colour, and of others, again, more decidedly buff.

Like the last, this little Striped Squirrel is found in Formosa, in the Tingchow mountains of Fokien, and in Hainan. In the latter island I first detected it in the forests of the interior; but I observed it later in most woody places, especially where the Areca- and Coconut occurred. It runs with great agility along the ground and up the trunks of trees, but it descends trees slowly and awkwardly. It is, however, quite an arboreal species. Dr. J. E. Gray considers the South China species the same as the Himalayan animal; so that it has rather an extended range.

The Gazetteer calls this the "Hill-rat, shaped like a Rat, but incapable of hurting rice."

16. COMMON RAT. *Mus decumanus*, Pall.

Common at Kiungchow city, and in all the large towns we visited. "Shoo [or Rat], of all hole-frequenting vermin the biggest thief. If it eats salt it gets light in body. If it eats arsenic it quickly dies. The skins of the larger ones are used for furs, which are called 'furs of the Heavenly Deer.'"—*Gazetteer*.

17. RED FIELD-MOUSE. *Mus badius*, Blyth?

I picked up near the capital city the mutilated body of a Field-mouse, with coarse yellowish chestnut hair above, and white beneath. The specimen was too bad to preserve. I refer it, with doubt, to Blyth's species from Burmah.

18. SUBCRESTED PORCUPINE. *Hystrix hodgsoni*, Gray, P. Z. S. 1847, p. 101.

One of our party picked up a Porcupine's quill in the jungle at Nychow (S. Hainan). It is black, with white at tip and base, and answers to the dorsal quills of the Chinese animal which I have brought home from the Fokien province (China), and which appears to be an adult of the Himalayan species, hitherto only known from immature crestless examples. The Chinese specimen shows a small crest on the back of the head.

The Chinese call the Porcupine the *Haochoo* (Bristly Pig) and *Fung-che*. The Hainan Gazetteer says it is "like a Dog, lives in holes in the ground; has the hair black and sharp, like awls, 4 or 5 inches long; and a large tail. When attacked, it shoots its thorny bristles at its aggressors."

19. THE HAINAN HARE. *Lepus hainanus*, sp. nov. (Plate XVIII.)

We did not meet the Hare at all in our rambles in Hainan; but a Mandarin's son in the capital city gave me a live specimen taken in the neighbourhood, which I was surprised to find very different from the small species (*L. sinensis* of Gray) that ranges from Canton to Peking. The Hainan Hare is of about the same size as the Chinese, but has a smaller and rounder head, is more brightly coloured and

differently marked, and, instead of having coarse hair, has a soft woolly fur more like that of *L. timidus*. Indeed it is strange that so warmly clad a species should be found in such low latitudes.

Back, shoulders, and rump light yellowish brown, tinged with chestnut and fretted with black, the individual hairs having a band of yellowish and a long tip of black. On the rump the long hairs are closer together, and the black unites to form irregular bands and streaks. Down at root of hairs brownish grey. Round the nose, forehead, between the ears, and cheeks the main colour as above, all fretted more or less with black, the black forming an irregular mark on the cheek in rear of the eye-line. Anterior edge of eyelids and a patch in front of it white. Ear in front brown, with a few of the hairs tipped with yellowish; behind pale buff, blackish brown at tip, with a white margin; front borders of ear white. Throat, breast, belly, under tail, and inner surface of hind legs pure white; inner surface of fore legs less distinctly so. Hind neck light rust-colour, with a broad line of a deeper and richer hue of the same down its centre, making together a conspicuous patch. A broad band of rusty yellowish brown runs across the under neck and chest, sprinkled with a few black hairs; fore legs a richer hue of the same inclining to tile-red. Hind legs brown. Sides of body light chestnut-brown with few black hairs. Soles of feet light dingy brown; nails brown. Tail brownish black on upper surface. Moustache-bristles, some black and some white, and some half and half.

In its coloration this species may be at once distinguished from *L. sinensis*, Gray, by its white throat and much whiter underparts, by its broad nuchal patch and black upper surface of tail, and by the white borders to its ears. The coarse hair on its soles is a dull tawny, and not the bright ferruginous that marks those parts in *L. sinensis*.

Total length about 14 inches; of tail to tip of hairs 3; of fore leg 4.75; of femur 3.75, of tibia to end of toes  $3\frac{1}{2}$ ; of ear 3; breadth of eye .6.

*Skull* much shorter than a skull of *L. sinensis* of the same age, but of nearly equal breadth, rounding uniformly backwards, and the nasal bones sloping gradually forwards and downwards, giving the head a rounded appearance. Incisive opening above palate narrower at base. Posterior edge of palate with a rounded nasal spine, the same part being smoothly convex in *L. sinensis*. Occipital bone above the foramen magnum nearly flat, with but a slight central ridge. Supraorbital process small and placed back. Molars smaller and narrower,  $\frac{5-5}{5-5}$ . Anterior upper incisors without the deep groove which characterizes these teeth in the genus *Lepus*, but marked with several narrow indistinct ridges. Lower jaw short and high. Incisors  $\frac{4}{2}$ .

*Dimensions*.—Length from front of incisors to projection of occipital crest 2.85; breadth from molar to molar 1.45, between orbits .62; from foremost molar to front of incisors .85; greatest breadth of brain-case 1 inch; height of skull (crown to base of lower jaw) 1.80.

The peculiar form of the upper incisors in the Hainan Hare is worth



noticing. A skull of *L. ruficaudatus*, Geof., from India, in the Museum of the Royal College of Surgeons, has similar upper incisors.

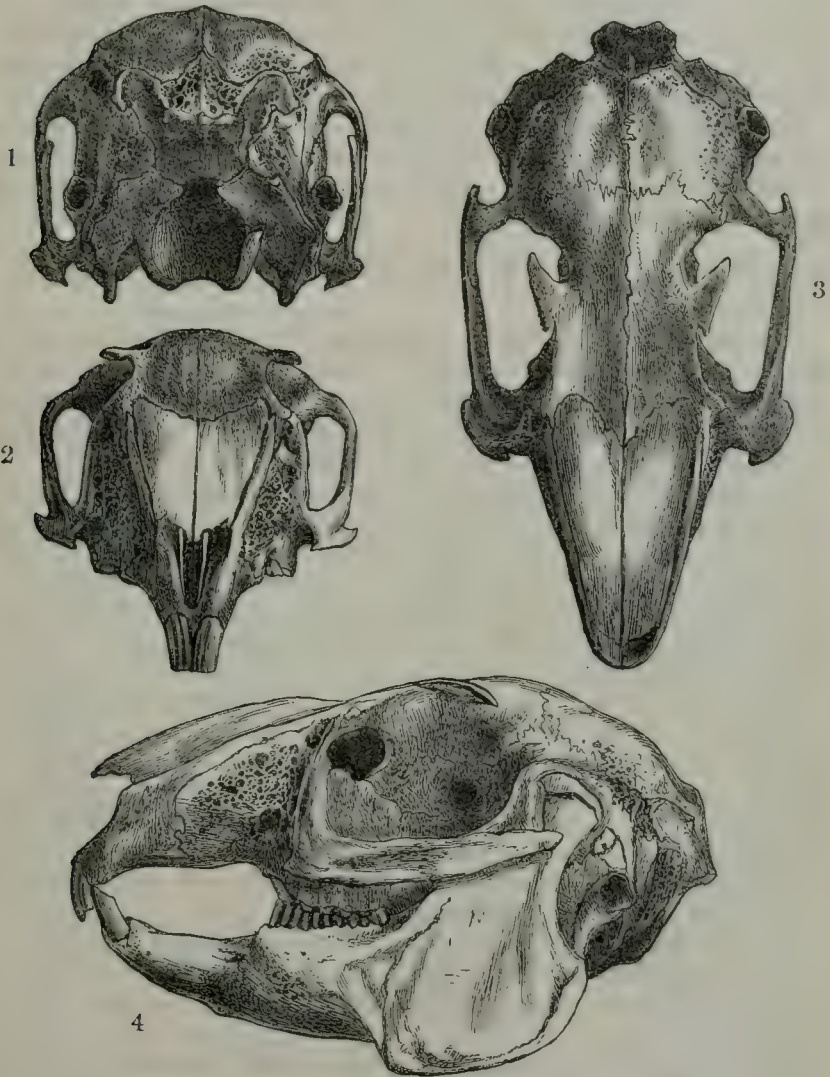


Fig. 1. Skull of *Lepus hainanus*, from behind.  
 2. Ditto, from before.  
 3. Ditto, upper view.  
 4. Ditto, side view.

The nearest ally of our species appears to be *L. peguensis*, Blyth (J. A. S. xxiv. 471, and J. A. S. xxi. 359), "from the east side of the range of mountains dividing Arakan from the valley of the Irrawaddy," which, however, is a larger animal, has "the paws black underneath," "a large blackish terminal patch to the ear," and "towards the tail above a strong tinge of ash-colour." Blyth adds,

in a footnote to the second reference, "Hares are unknown in Arakan and in the Tenasserim provinces, also throughout the Malayan peninsula and archipelago, with the exception of *Lepus nigricollis*, F. Cuv., in Java, which has most probably been introduced from S. India or Ceylon, as it doubtless likewise has in the Mauritius; but we have met with several notices of Hares in the Indo-Chinese countries, even in Cochin-China, the species being as yet undetermined."

The Gazetteer says of the *Too* (or Hare), "In the Buddhist books it is called *Shay-kia*; is as large as a fox and of a brownish colour; its *anus* has nine apertures; the female gets impregnated by licking the bristles of the male."

20. WHITE-WHISKERED WILD BOAR. ?*Sus leucomystax*, Temm. et Schleg. Faun. Japon.

I heard of a Wild Hog occurring in the island, but never got sight of it. The Hainan Gazetteer speaks of it as if it were the ordinary Wild Boar, and merely quotes from the *Puntsao* (the great Chinese Herbal) the following remarks in illustration:—"Yaychoo (Wild Pig), Kow Tungshe says, is in form like the domestic Pig, but has a small belly, long feet, and brown hair; roams about in herds. The hunters dare only shoot arrows at the hindmost animal; if they hit the foremost, or one in the centre of the herd, the rest scatter and wound the sportsmen. The pork of the Wild Boar is red, like horse-flesh, but is more excellent eating than that of tame Pig."

Du Halde (*op. cit.*) tells of the "Cochons-marrons (which are a species of Wild Boar)" being very common there.

At Yu-lin-kan (S. Hainan) the Le people trap the Wild Pigs by clearing a space on the edge of the jungle and enclosing it with a wooden stockade, with an opening on one side. The stockade is angular; and at each angle is built a cone-shaped trap, formed of strips of wood, pointing outwards and downwards. The Pigs that venture inside the stockade are driven, and in their attempt to escape jump head foremost into these wooden pockets, and, not being able to back out of them in their hurry, are easily taken.

At the bartering-place Lingmun (Central Hainan) I picked out two Pigs' skulls from a lot of bones brought in by the Le to dispose of to the Chinese for manuring-purposes. These skulls are evidently not of a wild Pig.

Du Halde must mean by "Cochons-marrons" runaway, or feral, domestic pigs; but it is scarcely probable that a large island like Hainan has been stocked by runaway pigs. I did not see any peculiar Pig in the possession of the Le people, nor did I hear of any.

21. SCALY ANT-EATER. *Manis dalmanni*, Sundevall.

*Pholidotus dalmanni*, Gray, P. Z. S. 1865, p. 366.

I procured the skins of an adult and of a young Scaly Ant-eater at Hainan, which have much in common with the South-China species.

*Adult.* Total length 33 inches; tail 12.75 inches. Ears developed much as in the Chinese species. Scales rather darker. Reddish hair on underparts, and between scales much darker. Scales



of the three lowest series on sides of body between fore and hind legs carinated, or with a longitudinal ridge down the centre of each. A few on hind leg also keeled, but less distinctly.

*Young.* Total length 16 inches; tail nearly 6 inches. Scales very pale, whereas in the young of the Chinese species they are very dark. Lateral scales with prominent keels; those on hind leg more or less distinctly so. Scales small and uniform in adjustment, and with complete edges; those of the adult jagged, and broken at edge. Two small bundles of stiff hair project over each scale on the right and left of the overlapping apex of the scale behind.

I have a series of skins and bones of the *Manis* from Amoy and Formosa, which, together with the two above skins, I have handed over to Dr. Günther of the British Museum, who has offered to make a special study of them.

The Gazetteer gives, "The *Chuen-shan-kia* (or Hill-borer), also called *Ling-le* (or Mountain Carp), like a small Crocodile (Tow), and resembling a Carp with legs. Burrows in the hills, and enters into water. Delights in eating ants."

This closes the list of Hainan Mammals actually seen or procured in whole or part by myself. But to make the paper as complete as I can, I will quote the remaining matter in the Hainan Gazetteer on the subject, taking it in the order of the Chinese work.

"*Wild Cattle.*—These are domestic cattle that have for long had the run of the numerous mountains and peaks of the neighbouring Le. These have originated from cattle that were let loose to pasture and not collected to their stalls each night. Their dispositions have become wild, and they flee from the sight of man. To obtain them it is necessary to shoot them with a gun."

"*Seao how, or Small Dog.*"—The old edition of the Gazetteer does not describe it. Of the group classed under the character *Le* (or Fox) we are told there are "several kinds." Besides the Heangle (*Viverra zibetha*), the Mao-hwa-le (*Viverricula indica*), the Pe hia le and Chale (which I take to be *Helictis moschata* and the *Herpestes* respectively), it gives the Chih le, or Red Fox. Some of my companions declared they saw a Fox at Nychow; but when cross-examined they were not confident it was a genuine Fox. The Chinese term for *Vulpes* is Hoo le; and I do not think the writer would refer to the true Fox, which is a well-known animal in China, under any other name.

"*Tsze-wei* (or Hedgehog), shaped like a Rat, with the whole body covered with spines." I found a Hedgehog common in North China (Tientsin and Peking), but I have never seen it in the south.

"The Gold-cash Pao (or *Leopardus varius*, Gray)." See above, under *Felis macrocelis*.

"Chai, resembling a Dog (Kow) with a long tail. Lang, like a (Keuen) Dog, with pointed head and high cheek-bones." Both Chai and Lang are applied to Wolves in books; in speaking it is customary to couple them together. I take the first to imply a species of *Lupus*, and the other *Nyctereutes procyonides*, Gray; but it is very questionable whether either occurs in Hainan.

"*Cattle.*—There are two kinds, called Water-Cow and Yellow  
PROC. ZOOL. SOC.—1870, No. XVII.

Cow." The Water-Cow is the ordinary Chinese Buffalo, used for tillage and draught throughout the warmer parts of China. In Central Hainan (Taipingssze) nearly all I saw were *albinoes*—that is, had pink flesh, white hair, and red eyes.

The term Yellow Cow refers in South China to a small, short-horned, straight-backed breed, which used to occur wild in Formosa a century or two ago. I saw few of these, however, in Hainan. Most of the domestic cattle there were more or less humped, and seemed to be a cross between the Yellow Cow and the Indian humped breed. They were of much the same size as the Yellow Cow, but were in many cases brindled and patched like our home cattle. The South-China cattle are generally of a uniform yellowish-brown or black colour, sometimes with more or less white on the head, feet, and belly.

"*Horses*.—There are many white and sorrel-coloured. A work on geography of the former Han dynasty describes Tanurh and Choogai (divisions into which the Chinese possessions in Hainan were then divided) as having neither Tigers nor Horses. The old Gazetteer also says, 'Horses do not count among the natural productions of Hainan.' In the present day Tigers do not exist there, but Horses are produced in abundance." The said Horses are, of course, only Ponies of the small South China breed, with well moulded and compact limbs, rather large head, and long tail. They are not much used, except by officials.

"*Yang (or Goat)*.—There are Hill-goats and Manure-goats. The former are driven out to pasture over the land and find their own food. The latter are shut up when small in floored and covered pens, and fed on cut grass and leaves. Their feet never touch the ground. They grow very fat and are excellent in flavour." All the Goats I saw pasturing on the hills were black, with yellow irides. Their hair was rather short and coarse, their horns about the length of the head; and they had the usual chin-tuft. It is the ordinary breed of South China and Formosa.

"*Yu shoo*, also called *Sêng shoo*, with a long body and large tail, is capable of suppressing Snakes and Vipers; is also fond of seizing Rats, birds, and poultry. In the work *Kwang ya* it is called *Shoolang* (Rat Wolf). The following verse from the *Chuen-tsze* refers to this creature:—"Can the Ke-ke (warrior's charger) catch Rats like the Leseng?" This is the *Mustela sibirica*, Pallas. Where the House-rat is abundant in Chinese towns this Weasel is pretty sure to occur also. It is as common in Amoy as in Tientsin.

"*Kow (Dog)*.—These are yellow, black, white, banded, all colours. Those that hang the feet with soles upturned are called *Keuen*. Those with long muzzles can be used for tilling the fields." The commonest Dog kept by the Chinese in Hainan is the one generally seen in South China, a larger breed of what is known as the "Wolf Dog" in England. There was another race, with shorter and blunter head, short hair usually of a brindled colour, of rather larger make, and bigger-boned. There were also what appeared to be *Mongrels* between these two. I have noticed the second race as also occurring



about the towns and villages of South China. The Aborigines appear to have no peculiar Dog of their own.

“*Choo (Pig)*.—Ears small, hoofs short. The white-necked variety is looked on with dislike.” These small white and pied Pigs are reared in great quantity in Hainan, and a large trade is done in them with Canton, where the larger black race of South China, with long head and drooping ears, hollow back, and hanging belly, is comparatively scarce. It is the Hainan Pig that has been introduced into England, through Canton, as the “small China Pig;” and there is certainly a strong family likeness between the pretty Hainan race and the Berkshire breed at home.

“*Mao (or Domestic Cat)*.—Cannot endure fleas or lice on its skin. Cats that have nine holes inside the mouth will catch Rats the four seasons through.” The Cats that I saw in the towns of Hainan were of the small short-haired race reared in Canton and throughout Southern China—very similar to the ordinary London Cat, but rather smaller.

### 3. List of Reptiles and Batrachians collected in the Island of Hainan (China), with Notes. By ROBERT SWINHOE, F.Z.S.

#### I. *Sauria*.

##### 1. VARANUS DRACÆNA (L.); Günther, Reptiles of Brit. Ind. p. 65.

This large Lizard appears to be common in the interior of Hainan, and is eaten by the Chinese. I procured the skin of a good-sized specimen, and the foot of a smaller one. Dr. Günther has determined them to be of this species, which before was only known to occur in India, from Nepaul to Ceylon. I have not met with it in any other part of China.

##### 2. MABOUIA CHINENSIS (Gray); Günth. *op. cit.* p. 83.

The Chinese Skink is common in Hainan, and in China generally south of the Yangtze. It is also abundant in Formosa, and in the dry sandy millet-fields of the Pescadore Islands, where, however, it seems always to remain of a small size. The large Chinese specimens are sometimes richly marked with orange on the sides of the neck.

##### 3. PERIPIA PERONII (Dum. et Bibr.); Günth. *op. cit.* p. 110.

The noisy House-gecko, *Gecko japonicus* (Dum. et Bibr.), did not enliven the walls of houses in Kiungchow city; but in its place this small species was occasionally seen. It seems to be silent. The best specimen I have brought was captured on the wall of the Taotai's waiting-hall at night. It was catching the flies attracted by the light of a lamp. Dr. Günther quotes this species as occurring in Mauritius, Penang, and Ceylon; but this is its first occurrence within Chinese bounds.

## 4. DRACO, sp.?

The little Flying Lizard appears only to be found in the jungly district of Nychow (South Hainan), where it is an article of trade. The natives say that it is usually met with during spring in the forests in pairs flying from tree to tree. They are caught with a net; and when one is taken the other falls to the ground and allows itself to be captured without difficulty. They are pinned out like Butterflies and dried for the market. Their chief use is to hasten childbirth, the dried reptile being placed on the forehead of the woman in labour. They are called *Fei-shay*, or "Flying Snake," and sell for one shilling apiece. I bought six of the prepared specimens; but Dr. Günther says that in their dried state it is impossible to determine the species.

5. CALOTES VERSICOLOR (Daud.); Günth. *op. cit.* p. 140.

This long-tailed green Tree-lizard, with a combed back, was very common in all the woody parts of the island, and I secured a good series. It is very agile in its movements, running with great celerity along the ground and up trees, and leaping from bough to bough like a Squirrel. The Chinese are very loth to touch it, declaring it to be venomous.

6. LIOLEPIS GUTTATUS, Cuv.; Günth. *op. cit.* p. 154.

On the low sandy hill, partly covered with Cocoa-nut trees, that bounds on the south the Lingshuy lagoon (S. E. Hainan) I first met with this large, showy, white-spotted Lizard. They were very numerous, and the sandy soil was riddled with their holes. They lay basking in the sun, and when disturbed would run with great speed to the mouths of their holes, where they would stop short and turn their heads about. If not satisfied with what they saw, they popped at once into their holes. If surprised far from their holes, they spring into the air while running, and, expanding the loose red skin of their sides, skim along the surface of the sand for a considerable distance (say, often twenty yards at a time) and thus reach their retreats at greater speed. Their flight is not continued by flaps, but seems to be merely a long sustained leap, the body being made buoyant by the expanded side skin, and is analogous to the flight of the Flying-fish. They have a peculiar smell about them, which affects the taste of their flesh; and they are in consequence not eaten by the Chinese, except when in great distress for food. I met them again in the Nychow district, and in many warm sandy nooks along the west coast—never in the neighbourhood of woods, and I do not believe that they ever scale trees. We saw hundreds of them, and took great interest in watching their habits.

The British Museum has specimens of this Lizard from the Malayan peninsula, from Mergui, from Cambodia, and from China.

II. *Ophidia*.

## 7. SIMOTES or OLIGODON, sp.?

A red Snake about  $1\frac{1}{2}$  foot in length, Dr. Günther says, belongs



to one or the other of these genera, but its head is so injured that he cannot determine it.

8. *TROPIDONOTUS STOLATUS* (L.); Günth. *op. cit.* p. 266.

This common Indian species, which may be distinguished by the longitudinal white stripe it carries on each side of its back, was abundant in Hainan, as it is elsewhere in South China.

9. *PYTHON MOLURUS* (L.); Günth. *op. cit.* p. 331.

Two large Pythons were exposed in the market for sale at Tai-pingsze (Central Hainan) in February. They had been taken in the neighbourhood, and I was told that the country people often brought them in. They were confined merely by a straw rope twisted round the neck. The natives declare that they are not hurtful to man; and are easily caught by throwing over their heads a noose of twisted grass, and may with this be led about without danger. They call them Vang, and take them for the sake of their skin, heart, and liver. The skin is used chiefly for making drums, banjos, and other musical instruments; and the heart and liver, when dried and pounded, for stimulative medicine. They offered the live ones to me for 1200 copper cash (5s.) each, provided I would return to them the hearts and livers. This was the day after the market-day, when the countrymen had left, and I could get no one to slaughter the monsters; so I contented myself with the couple of flat skins that I had already purchased at the bartering-station further among the mountains, which were quite sufficient to show the species.

Du Halde, in his great work on China, says of Hainan, "The reptiles cannot be dangerous there, seeing the confidence with which the islanders walk day and night on the plains and in the middle of the thick wood, without arms and with nearly always naked feet. There are, however, Snakes and Vipers of a prodigious size; but as they are very timid, a simple movement or the least cry drives them to a distance."

### III. *Batrachia.*

10. *RANA ESCULENTA*, L.; Günth. *op. cit.* p. 408.

Very common about the rice-fields, and offered in most of the Hainan markets as an article of food. I did not preserve specimens.

11. *RANA GRACILIS*, Wieg.; Günth. *op. cit.* p. 409.

A common species in Hainan, and, indeed, all over South China. Found on marshy ground and about the edges of rice-fields.

12. *HYLA CHINENSIS*, Günth. *op. cit.* p. 409.

Occurs in the woods of the island. It is generally observed sitting motionless on a leaf, and, from its green colour, often escapes detection.

In conclusion, I have to record my thanks to Dr. Günther for examining and determining all the species named in this list.