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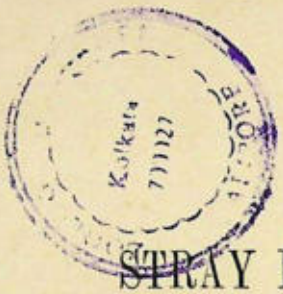
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STRAY FEATHERS.

Vol. V.] APRIL 1877. [No. 1.

A First List of the Birds of North-Eastern Cachar.

Mr. James Inglis has, for some years past, most kindly collected birds for me in the north-eastern corner of the Cachar District, for the most part near the banks of the Barak River, a few miles below its junction with the Jheeree, and some 20 miles or thereabouts due east of the station of Cachar.

Altogether Mr. Inglis has presented our museum with specimens of 157 species, and, though this is probably barely one-third of the total number that occur in his neighbourhood, I think that, now that he has added to our former obligations by furnishing a brief account of the localities in which he has collected, together with notes on each species which I have identified, the list which I am able to furnish of his collections is sufficiently interesting to deserve early record.

Mr. Inglis remarks:—

"The part of Cachar in which I collected most of the few birds, which I have from time to time sent you, lies about 2 miles south of Luckeepore, where the Barak emerges from the hills for the first time, and enters the lowlands.

"A few of the specimens I procured at some distance from here; these are noted and the places marked on the map which accompanies this.

"The whole of Eastern Cachar is drained by the River Barak and its tributaries, the principal of which are the *Jheeree*, which forms the boundary between Cachar and Munnipore, and the *Cheeree*, which rises in the North Cachar hills.

"These rivers rise to a great height during the rains; the Barak here often rises 70 or 80 feet above its cold weather level. The Barak is navigable to the river steamers up to Silchar, and indeed some 60 miles farther up, during the rains; with very little expense the rivers might be made navigable all the year round, as the obstructions are not very numerous, and consist principally of snags, silt, and indurated clay. I believe that steps will soon be taken to have the bed of the river cleared of all obstructions to navigation, as this province is fast rising into importance, and its rivers are its highways.

"The low jungle lands and rice fields are only about 70 feet above sea-level, and the majority of the hills which are scattered throughout these low lands and adjacent to the high ranges vary in height from 100 to 350 feet. These again, as also the low lands, are thickly studded with stagnant pestilential jheels and old river courses, in which flourish a great variety of gross-feeding animal and vegetable life. These jheels vary in breadth from 30 yards to a mile.

"I believe a good bird's-eye view of Cachar may be had from Nemotha, the proposed sanitarium on the North Cachar hills, which does not at all flatter the province, as the whole of Cachar is said to resemble one vast swamp.

"The Jujongs range of hills are the water-shed between the Jheeree and Cheeree, the highest peak is about 690 feet. The North Cachar hills are about 4,000 feet.

"These hills or *teelahs* are mostly very steep and in many instances quite precipitous.

"The soil is a very light, friable, yellow loam, with an average depth of about eighteen inches, but where the hills are steep or much exposed to the storms, the soil seems to be pretty well all washed away, whereas on level plateau land, and on sheltered teelahs, good soil exists in many places to the depth of 4 feet.

"In some places boulders, pieces of sand-stone, and conglomerate crop up, and often about 2 feet under the surface, regular layers of water-worn stones and pebbles are found, much resembling an old sea or river bed. Large masses of indurated clay are exposed along the river banks, but as yet, no true rock *in situ* has been found in this immediate neighbourhood. Signs of lignite, coal, lime, and iron have been seen on the higher ranges of hills.

"The soil on the low lands is a stiff alluvium, very rich and productive, and where not cultivated is densely covered with tall grasses, cane, and other jungle.

"The annual rainfall is about 120 inches. Spring showers begin about the middle of February and continue at intervals till about the 10th of June. These showers are generally accompanied by gales of wind, and always take the form of thunder storms. About March we are sometimes visited by hail storms, which, when severe, do infinite damage to tea gardens, and even prove destructive to cattle.

"The regular rains begin about the 10th of June, and begin to break up towards the end of September.

"The atmosphere during the summer months is very steamy, and, although the temperature does not often exceed 90°, the amount of moisture in the air makes even this heat very

oppressive. The maximum degree of temperature that I have yet noted has been 99° in the shade and the minimum 48°. From 1st of November to the 1st of March the climate is delightful.

"Vegetation is most luxuriant. The high ranges of hills are clad with a great variety of fine timber trees, the most valuable of which are Nagussar, Coorta, Julna, Jarrol, Sál, Corral, and Chama, but lower down and all along the rivers, very little valuable timber remains, except on estates in private hands, which were taken up some 12 or 15 years ago.

"Large tracts of fine timber and bamboos have been destroyed by the wandering tribes of Nagas and Kookis in Jhooming (*their* method of cultivation), for as they only take one crop off the same place, they ravage a large area in a few years.

"The first year, very few weeds spring up on land cleared from forest or bamboo jungle, and if the jungle tribes were to cultivate the land a second year running, they would have much more trouble in keeping their crops free from weeds, so rather than do a little extra weeding, they prefer to clear new land. Perhaps too the freshly broken land yields heavier crops.

"The first year or so after Jhooming very little jungle, except tall grasses and creepers, grow up; the second and third years, trees and bamboos make their appearance, but by the fifth or sixth years, just when the trees and bamboos *have* made a little headway and succeeded in partially killing the rank grasses, the Nagas consider the land fit for another crop, and so everything is again levelled to the ground.

"It is almost impossible to push ones way through any of the virgin jungles without cutting a path.

"With the exception of a few grand trees, none of the timber seems to be very old. It may be that the thousands of creepers, climbers, orchids and other parasitic plants, with which almost every tree is covered, succeed in smothering and so killing them. Very few trees seem to be over 60 or 70 years old.

"The principal native product is rice, but a little sugar-cane is also grown.

"The hill tribes grow a little cotton on their Jhooms and the Cacharees breed the tusser silk-worm.

"Tea is as yet the only product of European enterprise in the district.

"The mammals of this district include the Entellus,* Hoolock, Slow-lemur, common brown and some 3 or 4 other varieties

* Probably this is not *P. entellus*, but *P. schistaceus*.—Ed., S. F.

of monkeys, one of which much resembles a baboon. Elephants, buffaloe and mitna* are found where the jungle is not much disturbed.

"Sambur, parbuttia †, spotted deer, barking and hog deer, and two other varieties of deer are very common; tigers, leopards, civet cats, three or four varieties of wild cats, boars, sand badgers ‡, otters, ichneumons, foxes, jackals, and wild-dogs are often seen. The other common animals are squirrels, martens, porcupines, rats, moles, scaly ant-eaters, &c.

"Flying foxes and many varieties of bats abound. Porpoises are common in the Barak, also large long-snouted crocodiles *(Gharialis gangeticus)* and *Hydrosauri*. I have not seen the snub-nosed crocodile (*G. palustris*) here.

"All the rivers teem with fish, such as mahsèer, hilsa, poi, cheetal, pakaringa, batchua, and many other coarse fish.

"Snakes, lizards, frogs, land crabs, and turtles, abound. The cobra is not very often seen, but a species of python is often killed, as much as 25 feet long.

"The province is very rich in insects; day-and night-flying lepidoptera are very varied and plentiful, stick insects and praying mantes are common. The leaf insect is not rare.

"The specimens I have hitherto sent, represent, perhaps, one-third of the species I have seen, but not secured. You will observe that I have secured but few small birds, but I intend this season to get hold of most of them. Of their nidification I know very little. The myriads of ants, centipedes, leeches, ticks, and other insects with which the jungles swarm tend to make birds' nesting the very reverse of a pleasure."

The list is as follows :—

13.—Hypotriorchis subbuteo, *Lin.*

"I shot a female in March 1876, the only one I have ever come across.—J. I."

One specimen, a female not quite adult; wing, 11·0 a rather unusual size.

17.—Tinnunculus alaudarius, *Bris.*

"The Kestril is very common during the cold weather, but I have not seen it during the rains.—J. I."

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* *Gavæus frontalis.*—Ed., S. F.

† Possibly the swamp deer. (*Rucervus duvaucellii.*)—Ed., S. F.

‡ This is *Arctonyx collaris*, the bear-boar, or as Jerdon calls it the hog-badger.—Ed., S. F.

Two males of the ordinary type and an excessively pale female with the brown bars on the upper surface and on the tail exceeding the interspaces in width.

18.—Tinnunculus pekinensis, *Swinh.* ? T. Inglisi, *Sp. Nov.*

"On the 10th of March last, I came across 5 of these birds hawking over a patch of thin grass. I secured one of them; I have not again seen this variety.—J. I."

A single specimen clearly belonging to the same group as *cenchris* and *pekinensis* has been sent me by Mr. Inglis. It is a young male not fully adult, as the tail is rufescent and barred, and the head though becoming bluish is still tinged and washed with cinnamon. It is with some hesitation, that I refer it to *pekinensis*. I know very little of the Eastern Lesser Kestrel, and this specimen, possibly owing to its immaturity, entirely wants the supposed characteristic of *pekinensis*, the *whole* of the wing coverts as well as the tertiaries, scapulars, and interscapulary region being bright cinnamon. The wing measures 9·6, which is the dimension given by Mr. Sharpe for *pekinensis*, but the tarsus is only 1·2, which corresponds better with the dimensions of *cenchris*. The claws are whitish.

I am strongly inclined to believe that if *pekinensis* be really a good species, this specimen also represents a distinct species, hitherto undescribed, and if so, it may stand as *Inglisi*.

It seems specially characterised by a broad bare space round the eyes, and by a conspicuous dark moustachal streak.

Length, about 14·0; tail, 6·5; bill from gape, straight to point 0·73; wing and tarsus, as above; mid toe and claw, 1·1.

The legs and feet appear to have been a very pale yellow; claws yellowish horny, brownish towards the tips; cere yellow; bill blue, yellowish towards the base; lores whitish.

A conspicuous black or blackish moustachal streak from the anterior angle of the bare elipse in which the eye is situated, more than 0·75 inch in length; cheeks behind this stripe mingled grey and blackish; ear-coverts similar but darker, giving the appearance of a faintly indicated second stripe from the posterior angle of the bare elipse. Sides of the neck blue grey streaked blackish, and most of the feathers, especially towards the base of the neck, margined and tinged with chestnut; chin and throat white; feathers at the base of the throat tinged rufous at the tips and with a narrow black shaft stripe there. Forehead, crown, occiput and nape, dirty blue grey, the shafts of the feathers of the anterior portion of the head darker and the feathers of the posterior portion with distinct but very narrow blackish shaft stripes; those of the nape similar, but the shaft

stripes more marked. The entire occiput and nape washed with pale chestnut. The entire wing-coverts, except primary greater coverts, tertiaries, scapulars, interscapulary region and upper back, rich chestnut ; the large coverts, tertiaries and scapulars with tolerably broad blackish brown transverse bars, reduced on the upper back and interscapulary region to narrow arrow head imperfect bars or spots and almost entirely wanting on the lesser and median coverts.

Lower back, rump and upper tail-coverts pure French grey. Tail pinky chestnut, with a greyish tinge, tipped white, with an inch broad subterminal black band, and seven or eight other narrow transverse blackish bars.

Primaries and their greater coverts, and secondaries dark brown, almost black on the primaries. The primaries *excessively* narrowly, the secondaries narrowly, margined with brownish white; both secondaries and primaries with numerous rufous or rufescent white bar-like more or less triangular spots on the inner webs and most of the secondaries with corresponding irregular oval rufous spots on the outer webs also.

The breast chestnut, but not so dark as the back ; each feather on the upper portion with a blackish shaft stripe and on the lower portion of the breast with a more or less oval or cordate subterminal blackish spot ; abdomen paler and yellower, similarily marked. Thigh coverts and lower tail-coverts almost pure white and unspotted.

Wing lining, except the greater lower coverts, white, spotted like the lower part of the breast. Greater lower wing coverts white, with one or two black subterminal bars.

If this specimen really is *Pekinensis* it is in a stage of plumage that has not hitherto been described.

19.—Erythropus amurensis, *Radde.*

" I secured an adult male of the Eastern Red-legged Hobby in February 1875. I did not again observe it till October the same year, when one morning I came across some hundreds of them hawking over a piece of land which had been lately planted with tea. I secured five of them, and on dissecting them I found they had been feeding on crickets, grass-hoppers, beetles, and small lizards. During November they were seen in hundreds every day gyrating at a great height all over the country ; they disappeared about the middle of December. This year, 1876 they again returned, I saw about fifty of them on the 14th of October, and a few days afterwards they were swarming in every direction. When they settle, they generally chose a bare tree in the open, and often two or three hundreds may be seen on the same tree.

"They are very difficult to approach when settling in numbers but when they are feeding on white ants in the evenings, they become very bold and fly within easy range. The adult male is easily distinguished on the wing, but such only occur about one in ten.

"They again disappeared about the middle of December in numbers; but stray birds are yet to be seen—December 28th.—J. I."

For a diagnosis of this species and the European *vespertinus* see Mr. Sharpe's article (Vol. III., p. 303.)

Unlike most of the other Raptores, it would appear that in both these nearly allied species the males somewhat exceed the females in size.

I see that in Mr. Sharpe's Catalogue of Birds, Vol. I., p. 444, he gives the wing of the male *vespertinus* at 9·8 and of the female as 9·7. An adult male in my collection from Europe has the wing 10·05, a fully adult female has the wing barely 9·5, and the female all but adult has the wing 9·7.

In the same work, p. 445, Mr. Sharpe gives the wing of the male *amurensis* as 9·0 and of the female 9·5. Of four adult males three from Cachar, and one from near Rajamundry, Madras, the wings are 9·05; 9·3; 9·35; and 9·5.

On the other hand, the only adult female from Cachar has the wing only 8·8, while two young males from Cachar, and one from Thayet Myo have the wings 9·0; 9·0; 9·3; two young females from Cachar have the wings 8·65 and 8·85.

Now with reference to Mr. Sharpe's diagnosis above referred to I would remark that he says of the female, "under surface creamy white." This is not always correct; in the female before me, the chin and throat are creamy white, the whole of the rest of the lower surface is pale rufous or buff, possibly a shade more pronounced on the thigh coverts, but that is all. In his diagnosis, therefore, we should read "under surface creamy white to buff or pale rufous." All he says about markings, &c., appears correct.

Then again turning to his diagnosis of the young birds he says:—"Head, dark bluish, with black shaft streaks; foreheads, fulvous; under surface of body, buff." None of these points hold good in any one of the five young birds before me.

In all the head is *brown* with dark shaft streaks, and most of the feathers faintly margined with paler and more rufescent brown. The foreheads are white, with, in one specimen only, a creamy tinge, and the under surfaces are *white*, streaked and barred as in his diagnosis. In one specimen only there is a decided creamy tinge on the lower abdomen, thighs, and lower tail coverts.

As for the number of bars upon the tail, eight appears to be the usual number excluding the subterminal band, but one has nine and one has ten, so that this is hardly a characteristic which can be relied on for a diagnosis.

22.—Lophospiza indica, *Hodgs.*

"I have only seen this bird once. I managed to secure it.—J. I."

A single specimen, a female, clearly belongs to the larger race; it has the wing 10·6 and the tarsus 2·75. An enormous thick tarsus too, double the size of those of true *trivirgata* from the Nilgherris and Southern India.

A female from the Nilgherris, measured by Miss Cockburn, measured in the flesh:—

Length, 16; expanse, 28; wing, 8·8; tail from vent, 8·5; tarsus, 2·3.

A male from the same locality measured:—

Length, 15·25; expanse, 27·5; tail, 7·6; wing, 8·6; tarsus 2·25, but considerably slenderer than in the preceding specimen; it weighed also only 10 ozs. against 13 ozs. in the female.

A nearly adult male from Kallar, Nilgherris, had the wing only 8·1; a young male sent me by Mr. Bourdillon from Southern Travancore measured:—

Length, 15; expanse, 27·25; wing, 8; tail, 7·25; tarsus, 2·36.

All the southern birds that I have seen belong to this smaller and less robust type; on the other hand, an adult male from Sikhim has the wing 9·3. Females from the same locality have the wing 9·9, 10·15, 10·17, and 10·6.

A female from Sumbulpore has the wing 9·7, and one supposed female from Tipperah has the wing 9·55. These are all adults or nearly so.

A quite young female from Sikhim has the wing 10·2; another has the wing 10; and a young male has the wing 9·3.

Lastly, an adult female from the Pine Forests of the Salween has the wing 9·9.

The question has not yet been fully worked out, but from the above referred to specimens now in my museum it would appear that the smaller race, the true *trivirgata* (wing, 8 to 8·8) inhabits peninsular India whilst the larger race *indica* (wing, 9·3 to 10·6) extends from Nepal and Sikhim eastward through Tipperah to Pegu and the lower Salween, and westwards through the Tributary Mahals as far as Sumbulpore.

23.—Micronisus badius, *Gm.*

"The Shikra is not uncommon; it remains here all the year.—J. I."

A well marked female of this species, and a young bird which may belong to this or the next species.

23 *ter.*—Micronisus poliopsis, *Hume.*

"This Hawk is perhaps more generally met with than any other; it breeds during March and April.—J. I."

A male of this species, identical with one of the Thayet Myo birds. It would appear that the line of junction of these two species or races is somewhere in this the Cachar District.

34.—Spizaetus caligatus, *Raffl.*

"This Hawk Eagle is rare here, in 4 years I have only seen one which I managed to kill when she was in the act of carrying off a fowl from the Morghee khanna.—J. I."

A fine female with a tarsus over 4·; mid toe and claw also rather more than 4·; and wing 17.

Mr. Sharpe obviously considers that the adult is always deep chocolate brown above and below; but this is not, I think, the case, at any rate with the race that we in India identify as *caligatus.* I have now seen a great number of specimens old and young, and have a large series in our museum, but we possess only one single Indian-killed specimen in the black plumage (obtained near Dacca) and I have only seen one such other, and this although I have certainly seen above fifty Indian-killed adults. From their extreme rarity in India, I should have been inclined to consider these black birds mere melanisims, did I not know that further south and east they are more common. Here in India the normal adult is dark brown above, but pure white below, with a very conspicuous and broad central throat streak, and with blackish shaft streaks to most of the rest of the feathers of the throat; every feather of the breast and upper abdomen has a very broad, dark hair-brown shaft stripe extending upwards from the tip for about an inch. The flanks are much mottled with brown and the lower tail coverts are a rather lighter brown narrowly barred, or, when the bars have become obsolete, spotted with white.

37.—Spizaetus Kienerii, *Gerv.*

"I was lucky enough to secure the only specimen of this handsome bird that I have ever met with; I got it while on a fishing excursion on the Cheerie close to the Cacharee Degoon Ponjee, at an elevation of 2,000 feet. I cannot give you much information about it or its measurements. I found it perched on a very tall tree overhanging a precipice in the act of devouring something, but what it was I cannot tell, as it fell over the rock; the bird would also have followed suit had he

dropped dead, but his pinion was only broken and he came down in a slanting direction; he fought most fiercely while I was securing him.—J. I."

An adult specimen. The adults of this species differ in one respect conspicuously—some have the chin, throat, and breast, snow white; in others these parts are strongly tinged and overlaid with the bright ferruginous chestnut of the rest of the lower parts.

Mr. Sharpe (Cat. B. I., p. 256) gives the habitat of this species as the Indian Peninsula, Malacca, and Borneo. I have, however, strong doubts whether it is this species which occurs in the Indian Peninsula, and anyhow it must be extremely rare there, whereas in North-Eastern India, as in Sikhim for instance, it is far from uncommon, and here we find it again in Cachar. The specimen sent is a male with a wing 14·3. In the females the wings reach to 17·5.

39 *ter.*—Spilornis Rutherfordi, *Swinh.*

"This Eagle is not uncommon. I have generally observed it in plains. I have seen it throughout the year; it subsists on snakes, lizards, and large grasshoppers.—J. I."

An adult and a young female, both belonging to this smaller race, the female having the wing only 16·75.

40.—Pandion haliaetus, *Lin.*

"The Osprey is not uncommon on the larger rivers; it is a bold fisher and often kills very large fish; it is most common towards the hills. I have never noticed it during the rains.—J. I."

An adult, unsexed, wing 19·2.

41.—Polioaetus ichthyaetus, *Horsf.*

"This Eagle is rather rare. Here it generally fishes in jheels. The natives say it often carries off kids and fowls. It is rather a slovenly bird and does not keep itself over clean.—J. I."

A young specimen, unquestionably of this species, with a wing 19, and tarsi enormously thick, with the whole throat, breast, and upper abdomen in the lineated plumage, but with the greater part of the tail already white, though with a broad black terminal band, and much mottled elsewhere with brown.

As in the Bootan Doars and the Sikhim Terai, both this and the *next* species appear to occur in the Cachar District.

41 *bis.*—Polioaetus plumbeus, *Hodgs.*

"This Fishing Eagle is to be found on all the rivers; it is very common all the year.—J. I."

An old adult of this species with a wing 17, and without any trace of white on the upper surface of the tail, but with the lower surface of the basal two-thirds of the tail greyish white mottled with dark brown.

No one who has compared a series of these two species can doubt their distinctness. *Ichthyaetus* must weigh nearly double what *plumbeus* does.

51—Circus macrurus, *S. G. Gmel.*—C. Swainsoni, *Smith.*

"The Pale Harrier is not common. It is found on the banks of rivers and some times scouring the rice fields. I have only seen it between December and March.—J. I."

53.—Circus melanoleucus, *Gm.*

"This pretty Harrier is extremely common from September to April. I have not seen it during the hot weather.—J. I."

Numerous specimens sent from Cachar shew that this species is very common in that district. Amongst them are several young birds, which, I am sorry to say, do not greatly assist in elucidating the complicated question of the change of plumage in this species.

And first as to whether the female ever assumes the perfectly black and white plumage of the adult male. On this point, I see that Mr. Gurney accepts my view, that if the female ever does assume this plumage it is only quite exceptionally, and not as a normal stage of plumage. It is not merely that out of more than fifty specimens dissected by various Indian observers during the last few years, not one female has yet been detected in the black and white garb; but there is an independent argument derived from the fact that the tarsi and wings of the black and white birds average considerably smaller than those of what I take to be adult, and nearly adult females. Clearly, if these latter afterwards passed into the black and white plumage, we ought to find a fair proportion of black and white birds as big, if not bigger, than these supposed immature birds. The fact that nearly the whole of these are bigger than almost the whole of the black and white birds, appears to me a conclusive argument against these so-called immature females ever putting on the black and white garb.

Now I have most carefully measured the 34 black and white specimens that my museum at present contains with the following results :—

	Tarsus.	*Wing.*	*Locality.*
15 specimens with tarsi less than 3 inches.	2·96	13·75	Cachar.
	2·97	13·4	Tipperah.
	2·95	13·4	Pegu.
	2·9	13·8	Sumbulpore.
	2·8	13·8	Raipore.
	2·99	13·2	Tipperah.
	2·9	14·25	Sumbulpore.
	2·95	13·8	Raipore.
	2·9	13·5	Tipperah.
	2·9	13·8	Sumbulpore.
	2·98	13·91	Raipore.
	2·9	13·70	Sohala.
	2·9	13·8	Raipore.
	2·9	13·5	Madras.
	2·9	14·0	Tipperah.
7 specimens with tarsi exactly 3 inches.	3·0	13·5	Madras.
	3·0	14·0	Dacca.
	3·0	13·6	Tipperah.
	3·0	14·0	Raipore.
	3·0	13·9	Raipore.
	3·0	14·0	Sumbulpore.
	3·0	14·2	Sonepore.
7 specimens over 3 inches less than 3·1.	3·05	14·34	Sikhim.
	3·07	14·4	Arconum, Madras.
	3·07	13·6	Raipore.
	3·09	14·1	Raipore.
	3·08	14·1	Dacca.
	3·05	14·2	Raipore.
	3·09	14·1	Raipore.
3 specimens from 3·1 to 3·12.	3·1	13·3	Tipperah.
	3·11	14·05	Sonepore.
	3·12	14·0	Raipore.
1 specimen 3·25.	3·25	13·99	Raipore.

It will be seen that out of 33 specimens in black and white plumage no less than 22, or 66 per cent., have the tarsi 3 inches or less than 3 inches, and that 29, or 88 per cent., have the tarsi less than 3·1, and that in only one single specimen does the length of the tarsus exceed 3·12. These measurements, it will be understood, have been taken with the greatest care, and verified by two persons, so that they may be depended upon to the 100th of an inch where the tarsi are concerned, and one-tenth of an inch where the wings are concerned.

If we turn now to the state of plumage, which I believe to be characteristic of the female, the following are the dimensions of all the specimens in my museum :—

	Tarsus.	*Wing.*	*Locality.*
Less than 3·1	3·05	14·1	Cachar.
	3·09	14·0	Thayet Myo.
3·1 to 3·12	3·1	13·7	Dacca.
	3·1	13·8	Thayet Myo.
Above 3·2	3·205	14·0	Raipore.
	3·26	14·45	Cachar.
	3·28	14·5	Sumbulpore
	3 3	14·8	Bootan Doars.
	3·3	15·1	Dacca.
	3·35	14·3	Gondah.

It will be seen that whereas in the black and white plumage 66 per cent. had the tarsi 3 or less, not one single one of what I suppose to be the females, have the tarsi as small as this.

Again whereas only one single specimen in black and white plumage has the tarsus over 3·12 no less than 60 per cent. of the supposed females have the tarsi over 3·2 and 30 per cent. have it 3·3 and upwards.

It seems to me perfectly clear from these figures that the females do not normally assume the black and white garb.

I will now describe what I consider to be the perfect adult female, and to make the description as short as possible, I will compare it with the adult male.

The tail is silver grey like the male, but larger, and bears five or six well marked brown transverse bars; on the upper tail-coverts the grey markings of the male are replaced by pale brown. The whole of the black of the head, back, scapulars, and wings of the male is replaced by a deep, slightly sooty, clove brown; the feathers of the head being some of them narrowly margined with rufescent; the white patch along the ulna is in the female a less pure white, and each feather is centred with clove brown; the grey of the greater coverts, later primaries and secondaries is browner and less pure, and each feather has a conspicuous sub-terminal transverse blackish brown bar and one or more similar bars higher up; the tibial plumes and lower tail-coverts are as in the male; the chin, throat, sides of the neck and breast, are clove or chocolate brown, streaked with white, or yellowish white, or about the ear-coverts pale fulvous. The abdomen, sides, flanks, axillaries, are white or nearly so, streaked, and in the case of the latter obsoletely barred, with chocolate or clove brown; the whole lower surface of the tail and of the quills is conspicuously barred with brown or blackish brown.

The bird above described, and which I take to be the perfectly adult female, was shot in January in the Bootan Doars, and has the wing 14·8, and the tarsus 3·3.

I may here mention that the tarsi are measured in front from the nick of the tibio-tarsal articulation to the nick of the articulation of the mid toe.

All have been measured in precisely the same way, but these dimensions are not necessarily comparable with those given by other writers, as, in many cases, I find that the tarsus is measured at the back to the sole of the foot.

At an earlier stage the female has the tail pale brown, with a greyish shade, and with the transverse bars less well marked; the brown of the back and scapulars somewhat lighter, and with less of the rich clove tint that characterises the adult; the patch along the ulna and at the carpal joint is very much marked, and mingled with pale rufous. The feathers of the head are brown much more broadly margined with rufous, and the whole of the sides of the head, chin, throat, and breast are white, with more or less of a creamy or pale fulvous tinge, each feather narrowly streaked with brown.

In a younger stage still there is a great deal more rufous buff, mingled with the head, neck, throat, and breast; there is much less grey on the wings, and no grey at all on the tail, the bars on which are much less conspicuously marked.

I cannot positively affirm that all these are females, some of them are certainly so, the sexes having been ascertained by dissection; I conclude the rest to be so by their similarity of coloring, and this view is confirmed by the constant large size of the tarsus. It is possible that the male also at times assumes this same style of plumage; but it does not always do this, and my own impression now is that it never does so. I have one undoubted young male sent from Cachar by Mr Inglis; tarsus, 2·95; wing, 13·25.

The whole of the head, back, scapulars, wings are an almost perfectly uniform umber brown, only the white bases of the feathers shewing through a good deal at the nape, and (and this is the remarkable point) two or three feathers of the forehead, two feathers on the occiput, one feather in the interscapulary region, and one of the lesser scapulars on either side, newly moulted and pure black; upper tail-coverts and two central tail feathers which are still a good inch short of the rest of the tail, precisely that of the perfect adult, the rest of the tail feathers pale drab brown with four broad darker brown bars.

Chin, throat, breast, similar to the upper parts, but somewhat paler, but some of the feathers of the chin newly moulted and black, and a whole patch of feathers at the base of the neck on

the right side, and *one* similar feather on the left side newly moulted and black; abdomen, vent, sides, flanks, and tibial plumes a deep ferruginous umber brown; lower tail-coverts mingled this color and white.

Now here is clearly the male moulting direct, from a plumage totally different from what I have described as that of the female, into the perfect adult.

I have another bird precisely similar to this last, but rather larger, tarsus 3·05; wing, 13·7, but without a single black feather, without the upper tail-coverts of the adult which, in this specimen, are white, with a great oval brown shaft spot near the tip, and with the whole of the tail of the young type, namely, pale drab brown with four broad ill-marked, somewhat darker, transverse bars.

Lastly, I have one specimen also from Cachar which absolutely baffles all my ingenuity to find a place for it. At first sight it seems to be a young female corresponding with the stage of the young males which I have just described.

The upper surface is precisely similar, but the primaries are beginning to show a little grey, and the feathers of the head are margined paler; the tarsus is 3·3; the sides of the head throat, and upper breast, are much as in the young males, but the lower breast and rest of the lower parts are just like those of the female, in a somewhat later stage, *viz.*, white streaked with a more or less rufescent clove brown. The wings and tail are both so much abraded as to lead to the inference that the bird was in bad case. Half the tail feathers are silvery grey without any bars, but they are not new feathers, these even are old and abraded; the other half of the tail is grey brown with darker bars; this half of the tail is still more abraded and all the feathers on this side are nearly an inch shorter than those on the other, but the most remarkable thing here is that there is just one new pure black scapular!

My own conviction is that this bird is a diseased female (I only guess the sex by the tarsus) and that no conclusions can be properly drawn from it, but still so little is as yet known of the changes of plumage which this species undergoes that I feel bound to record the peculiarities of this specimen.

55.—Haliastur indus, *Bodd.*

"The Brahminy Kite is very common throughout the year; it breeds in March and April; it generally fixes on a mango or peepul tree, close to a village.—J. I."

58.—Baza lophotes, *Cuv.*

"I came across three of these handsome birds one morning in November 1875 in dense forest jungle; they were in company

with a number of Bulbuls and King crows. I have not again seen them.—J. I."

59.—Elanus melanopterus, *Daud.*

"The Black-winged Kite is rather rare. I have only seen about half a dozen in 4 years; it frequents thin grass lands and when hunting hovers very like a Kestrel.—J. I."

60.—Strix javanica, *Gm.*

"I have only shot one of these Owls, but I have been told that it is not uncommon in the villages.—J. I."

72.—Ketupa ceylonensis, *Gm.*

"The Fishing Owl is rather common; it is easily known from its call. I caught a full-fledged young bird this year on the 15th of March; it got to be quite tame, and ate flesh as freely as fish. I once surprised a pair of them feeding on the carcass of an alligator which I had shot a few days previously.—J. I."

75.—Scops lettia, *Hodgs.*

"One of these pretty Owls was caught by my servants in the bungalow in November 1874.—J. I."

A single specimen exactly similar to some specimens from Sikhim, but perhaps slightly smaller.

76.—Athene brama, *Tem.*

"This little Owlet is very common, it may often be seen peering out of a hole in the trunk of a tree at mid-day.—J. I."

79.—Athene cuculoides, *Vig.*

"The Large-barred Owlet is very common. May be seen flitting from tree to tree during all hours of the day.—J. I."

81 *quat.*—Ninox innominata, nobis. *Vide* S. F. Vol. IV., pp. 286 and 374.

"I have often met with this Owl at dusk.—J. I."

Three specimens, all belonging to the type which Mr. Sharpe, Cat. B. Vol. II., 156, includes under *scutulata*, Raffles, but which I prefer to separate, being confident in my own mind that the Sumatran bird will turn out to be a different and considerably smaller bird. All three of the specimens before me must have been fully 13 inches in length, and I do not believe that Raffles, speaking of such a bird, would have said 10 inches.

Moreover, birds from Malacca and the Straits (as also from Ceylon and the Hills in South Travancore) which are most

likely to be identical with Sumatran ones, *are* about 10 inches in length, and cannot be united with these huge Cachar birds unless all the Indian and Malay Peninsular races are lumped in one species. I am not sure that this would not be right, but if *lugubris*, Tick, is to be separated so too, it seems to me must be *innominata*.

82.—Hirundo rustica, *Lin.*

"Very common throughout Cachar.—J. I."

This should perhaps be referred to the smaller race, *H. gutturalis*, Scop., but I confess that I am myself by no means convinced that the two supposed species are really separable. This is an adult with the chin and throat deep chestnut, and with the wing 4·5, and the tail, though apparently fully developed, only 3·75.

96.—Chætura indica, *Hume*. S. F. Vol. I., p. 471; IV., p. 287.

"This Swift is not rare, but difficult to secure; the only specimen I got I knocked down with my fishing rod over an ant-hill. Flies generally after a shower of rain. Generally seen in the vicinity of forest.—J. I."

The specimen from Cachar is similar to those from Southern India and the Andamans, and has the conspicuous white or yellowish white lore patch. It is an adult and has the wing 8·2.

100 *bis*.—Cypselus subfurcatus, *Blyth*.

"At all hours of the day this Swift may be seen sailing along at a terrific pace. Very common in stormy weather.—J. I."

For an enumeration of the characteristic points by which this species may be distinguished from the allied *affinis*, *vide ante*, Vol II., p. 524.

107.—Caprimulgus indicus, *Lath*.

"During the cold months, this Goat-sucker is to be found in quiet places. Disappears during the rainy season.—J. I."

114.—Caprimulgus monticolus, *Frankl*.

"Extremely common throughout the year.—J. I."

114 *bis*.—Lyncornis cerviniceps, *Gould*.

"This handsome bird appears about the beginning of August and disappears at the end of the rains. Very plentiful in August and September. Prefers hawking along a river.—J. I."

Three specimens identical with specimens from various parts of Tenasserim.

116.—Harpactes Hodgsoni, *Gould.*

"This beautiful Trogon remains with us all the year. It breeds in May. I have never seen it except in dense shady jungle. All the specimens I have, have faded, and the breasts are now white.—J. I."

An adult female remarkable for having the entire abdomen, vent, and lower tail-coverts snow-white, instead of the brilliant rosy color observable in normal examples. Only on the sides and flanks on one side are some of the feathers tinged with rosy. None of my very numerous Sikhim, Bhootan or Burmese specimens have "*faded*" in this way, and the matter requires investigation.

117.—Merops viridis, *Lin.*

"The common Indian Bee-eater is very common between August and April. A large number of them seem to migrate during the latter month.—J. I."

The specimens from this district have an intensely bright orange golden lustre on the occiput and nape.

118.—Merops philippensis, *Lin.*

"The Blue-tailed Bee-eater is common all the year.—J. I."

119.—Merops Swinhoei, *Hume.*

"Is common during April and May; disappears about the end of May.—J. I."

122.—Nyctiornis Athertoni, *Jard.* and *Selb.*

"The Blue-ruffed Bee-eater is not uncommon. It remains all the year; from seeing a pair frequent a large tree last April. I think they breed during that month.—J. I."

124.—Coracias affinis, *McClell.*

"Extremely common throughout the year. Breeds during March, April and May in the holes of trees.—J. I."

Neither of the specimens sent are very typical, but they are *nearer* to typical *affinis* than to *indica.*

126.—Eurystomus orientalis, *Lin.*

"This Roller is not uncommon, but very shy. As it remains all the year, I presume it must breed here although I have never seen its nest.—J. I."

127.—Pelargopsis gurial, *Pears.*

"This Stork-billed King-fisher is very common along slow running rivers and bheels; it remains all the year.—J. I."

The specimen sent is scarcely a typical *gurial;* the cap being lighter than in that species; indeed in many respects, it seems to approximate to what Mr. Sharpe separates as *burmanicus*. I suspect that ultimately a great number of the species of this genus will have to be abandoned.

129.—Halcyon smyrnensis, *Lin.*

"This King-fisher has often been a puzzle to me; I have, found them in the most unlikely places, in fact everywhere. I remember once watching, one going in for a feed on crickets; he settled on a large tree in the middle of a large clearance and every now and then darted down like an arrow to the ground returning immediately to his perch with something in his beak. After I had seen him at this for about ½ an hour, I stalked him and brought him down. On examination I found his stomach crammed with crickets.—J. I."

133.—Ceyx tridactyla, *Pal.*

"Although not at all rare, this tiny fellow often escapes observation. He sits so very close that I have more than once attempted to catch him with my hand. I once caught a pair in my Bungalow during the day. They affect the thickish jungle with very small streams running through it.—J. I."

134.—Alcedo bengalensis, *Gm.*

"The commonest of King-fishers, found wherever there is water.—J. I."

Wing, 2·87; bill at front, 1·55. This appears to be fully adult, but the bill is very short.

136.—Ceryle rudis, *Lin.*

"The Pied King-fisher is very common throughout the district; it always fishes on the wing. It breeds here about March. —J. I."

137.—Ceryle guttata, *Vig.*

"This large Pied King-fisher is only to be found in the mountain rivers or streams. I have not observed a single bird near stagnant or slow running water; it is seen nearly always in pairs. Breeds in March.—J. I."

A female, with the cinnamon under wing coverts, precisely similar to Himalayan specimens.

Bill at front, 3; wing, 7·1.

138.—Psarisomus Dalhousiæ, *Jameson.*

"I shot three Yellow-throated Broadbills on the 1st December 1875. Previous to that date I had not seen it in Cachar;

it continued plentiful during the cold months, but disappeared about the 1st of March. This year it again returned in large numbers about the 10th November.

It frequents thick jungle, and from 10 to 20 are generally to be seen together; one of its most distinct calls "pee, pee, pee, pee, pee," can be heard nearly a mile distant.—J. I."

140.—Dichoceros cavatus, *Shaw*. (*Vide* Vol. IV., p. 385.)

"The great Indian Hornbill, although not a resident, is oftener seen and spoken about than any other bird in Cachar.

"During the dry weather they are continually migrating to the south, and during the rains to the north. The noise made by their wings attracts attention at a great distance. They mostly fly in 5's and 7's, but as many as 30 are sometimes seen together. A good shot at them can only be had by waiting patiently on some height, where they fly low. A windy day is most favourable for bagging them. They afford splendid eating far superior to any fowl or pheasant.—J. I."

In some specimens the outline of the edge of the casque viewed from in front is nearly a half circle, in others it is nearly straight with only a slight central depression.

These differences, I am satisfied, are individual and not specific.—See further Vol. IV., p. 385.

142.—Hydrocissa albirostris, *Shaw*.

"Very common, feeds on fruits, is also passionately fond of live fishes,* which it catches in shallow pools. The hill tribes often bring down young birds; they are too easily tamed and soon become a great nuisance.

"You may consider it strange that a Hornbill should eat fish. The way I first discovered the predilection of these birds for this apparently abnormal article of diet was as follows:—

"I had a tame Otter, and at the same time three tame Hornbills. The Otter was fed several times a day in a large tub containing live fish. Some of these latter, when closely pressed by the Otter, used to jump clean out of the tub, and these the Hornbills always gobbled up in a twinkling.

"Once it happened that the Otter got hold of a fish by its head, while one of the Hornbills seized it by the tail. The struggle was very amusing; the Otter proved the stronger, and

* Strange as this statement of Mr. Inglis' may seem, I know of a somewhat parallel case. *Bereniconis comatus* feeds habitually on the ground, greedily devouring lizards and the like.

pulled the Hornbill well within his reach, he then let go the fish and seized the bird by the wing and would have killed it, I have no doubt, had we not interfered.

"Since then, I have found the bones of fish in the stomachs of several Hornbills that I have shot.

"This predilection for fish accounts for the habit these Hornbills have of frequenting '*khalls*' through which small streams run.

"The Nagas affirm that when these Hornbills are intent on fishing, they can be approached sufficiently closely to be killed with a stick.—J. I."

147.—Palæornis magnirostris, *Ball.*

"Very common. Breeds throughout the summer in the holes of trees.—J. I."

The specimens sent are not typical *magnirostris*, but they are nearer to this than to either *eupatria* of Ceylon, or *sivalensis* of Northern India. The yellow of the throat is conspicuous, the head entirely wants the glaucous blue tinge, and the adult males are nearly 22 inches in length. Possibly these birds should stand as *P. nipalensis*, Hodgs., but the yellow of the throat seems too conspicuous and the size is large.

148.—Palæornis torquatus, *Bodd.*

"Very common throughout the year.—J. I."

149 *bis*.—Palæornis bengalensis, *Gm.*

"I have only noticed this Paroquet during the cold weather months; it is very noisy and a great pest to the sportsman. —J. I."

Precisely similar to specimens from Sikhim and Burma, and has the pure green under wing coverts instead of the glaucous bluish under wing coverts which characterise *P. purpureus*, the species of Southern, Central, Western, and the greater portion of Northern India.

152.—Palæornis melanorhynchus, *Wagler.*

"The Red-breasted Paroquet is exceedingly common, in the evenings they may be seen flying in hundreds to their roosting places.—J. I."

In Blyth's Catalogue of the Birds of Burmah recently edited (apparently by Mr Grote, assisted) by Lord Walden, the Indian Parrots of this type are treated by Mr Blyth as belonging to two species. Of the first, which Mr. Blyth calls *P. vibrisca*, he remarks "an exceedingly common species in the forests of British Burma." "Westward

common in the Terai region of the East Himalaya; but its range does not extend further into India." "Great numbers of the very young are brought every season to Calcutta from Chittagong, and it is remarkable that from the earliest age the males only have the upper mandible coral red. In a presumed female which I possessed in captivity the upper mandible changed from black to coral red when the bird was about 18 months old, and I have seen numerous specimens which had been killed when the change was in progress. I have also shot red-billed and black-billed specimens out of the same flock, and therefore cannot admit the *P. nigrirostris*, Hodgson, as a distinct species differing only in the color of the upper mandible."

Of the other supposed species which Mr. Blyth designates *P. melanorhynchus*, Wagler, he says "a most closely allied species to the last from the Tenasserim Provinces, if not also the base of the Eastern Himalaya. As seen alive, together with the examples of the preceding, the difference is more conspicuous from its purely white irides, whereas the other has dark irides. The cap has a slight tinge of verditer, but no trace of ruddy coloring, and the red of the breast is continued past, the black moustachal streak and the ear-coverts so as to form a half collar bordering the sides of the cap; it also does not descend so far on the abdominal region, a larger portion of which is green than in the other. These differences are conspicuous in the living birds when seen together; all hitherto examined have the bill black, but in the male it is probable that the upper mandible is coral red."

On this the Editor remarks: "The facts here stated are quite new, I am not aware that they have ever been previously published. Dr. Jerdon was certainly unacquainted with them. Further investigation is most desireable, more especially as Mr. Blyth is completely at issue on many points with what has been averred by Mr. Hume. My own experience does not accord with Mr. Blyth's opinion."

With all deference to the learned Editor's opinion I do not think that all these facts *are* quite new. Dr. Finsch, in his diagnosis of *melanorhynchus*, lays especial stress on the narrow line of vinaceous red bounding the posterior margin of the grey cap and on the green hue suffusing the forehead and cheeks; and referring to this in Stray Feathers, Vol. II. I, on the faith of a Sikhim specimen with a red upper mandible sexed as a male, stated that these differences were characters of the young male of one stage only of the plumage.

I have now, however, a very fair series of this species of all ages and sexes before me, eighty-eight in number, from Kumaon, Sikhim, Cachar, Tipperah, Thayet Myo, Akyab, Kyouk-Phyou,

Rangoon, and numerous localities in Tenasserim from Pahpoon at the north to Malewoon on the Pakchan estuary at the extreme south, and again from numerous localities in the Andamans, and I am now in a position to state positively that although the young male, when nearly adult, sometimes at any rate if not always, assumes temporarily the distinctive plumage to which Mr. Blyth draws attention, still beyond all question, this plumage is normally that of the adult female.

I have before me now from the various localities above mentioned 33 adult males and 17 adult females. In all these, and these are all the *adults* I have by me at present sexed by dissection, the male has the upper mandible coral, perhaps it might more properly be called vermilion red, the female has it black, with, in some specimens, a sort of brownish ruddy tinge.

Again, the cap in the male is greyer and more lilac; in the female, though it varies in intensity, there is always a more marked green tinge on the forehead, lores and orbital region. In the male the green of the back and the sides of the neck abuts against the lilac of the head, and the feathers intervening between the green, and the tip of the black moustachal band are lilac, while in the female these feathers are rosy, and a band of the same color extends upwards behind the ear-coverts dividing the green of the sides of the neck from the lilac of the cap, which band, in some instances, almost extends to the nape. Lastly, in the male the upper part of the throat immediately between and below the points of the black stripes is distinctly suffused with purplish lilac, or bluish lilac, whereas this is entirely wanting in the same place in the female. In one female only is there a faint trace of this purplish tinge and that is an abnormally colored bird, for it has the band at the side of the neck, with a conspicuous orange tinge.

Now as every one of the adult males and females, the sexes of which have been ascertained by dissection from all these different localities present constantly these distinctions, I submit that it is conclusively proved that there is only one species, and that the characters on which the two species were differentiated are sexual and not specific.

Next it is to be remarked that the young male at one stage of its existence precisely resembles the female in plumage, but has the bill more or less distinctly red. It can only, however, be for a short time that this is the case; for, out of 88 specimens there are only two such, the one from Sikhim, the other from the Andamans; the latter was most carefully sexed by Mr. Davison with his own hands, and he drew upon the ticket the exact size of the two testicles as we commonly do to distinguish breeding from non-breeding males.

As regards the younger birds, the case is not quite equally clear, either they are variable or else it may be that owing to the difficulty of discriminating the sexes in very young birds, some of our specimens have been wrongly sexed. This much, however, seems to be quite clear, *viz.*, that both young males and young females when about half grown have both upper and lower mandibles black or brownish black. The bills of the males not uncommonly exhibiting more or less of a reddish brown tinge. It also appears certain that the great majority of the youngest males have *both* mandibles (and not as Mr. Blyth says the upper mandible only) red or reddish orange and also that this color changes a little later into black or nearly black. We have numerous such very young males sexed by dissection, and others again somewhat older, shewing the change from the red to black or blackish brown, and then again others clearly considerably older shewing the change of this latter color on the *upper* mandible into the vermilion red of the adult.

These are clearly the normal changes in the young male; first both mandibles reddish orange or orange horny; then both mandibles black or blackish brown; then the upper mandible vermillion red, and lower mandible blackish brown, or blackish horny, or horny brown.

The first change has been actually witnessed. Mr. De Roepstorff says (*ante* Vol. III., p. 264):—"You will remember naming that young *Palæornis* with the *black* bill for me. Now I got that bird as a little one before its feathers were properly grown, and its upper mandible was then red; on this account I thought it was a male, but after a short time I found the red, or reddish color of the bill, which was not unlike that of the same part the adult male change into black."

On the other hand, I believe, that exceptions to this general rule occur. I saw two birds taken from the nest which had blackish dusky bills, one of which I at the time made out to be a male, but as we have procured no second example as yet of the quite nestling male with black bill, there may have been an error in this case in the discrimination of the sex.

I may here note that I have an almost perfectly adult male with the lower mandible also red as Mr. Blyth remarks occasionally happens.

As regards the young females, of which I have some twenty odd specimens, some of them apparently very young, I should have been disposed to believe, that they had both mandibles black *ab ovo*, but there is one single very young bird sexed as a female by Mr. Davison which has the bill colored as in the nestling male. It would seem, therefore, that either this particular specimen has been wrongly sexed, or that the young

females occasionally commence like the males with reddish orange bills.

I can at present discover no constant difference between the plumage of the young males and young females.

153.—Loriculus vernalis, *Sparrm.*

"The Indian Loriquet is rather common; it breeds on the hills about April. It is often found sucking honey from a large red flower in March, when as many as 4 or 5 can sometimes be killed at a shot. It flies at a great pace, but is not in the least shy.—J. I."

163 *ter.*—Yungipicus canicapillus, *Blyth.*

"This little Woodpecker is very rare. I shot a specimen in March 1873, and have only seen two others since.—J. I."

When treating of this species (*ante* Vol. III., p. 61) I mentioned that specimens of *canicapillus* from Tipperah were somewhat intermediate between the typical *canicapillus* and *pygmæus*, and this remark applies equally to Cachar specimens, which are almost devoid of white spotting on the four central tail feathers. For further remarks on this species vide *loc. cit.*

165 *bis.*—Hemicercus canente, *Blyth.*

"This Woodpecker is rather rare, I have shot some 6 specimens at different times of the year. On the 18th March 1876, I found a nest of it containing two young birds. The nest was in the trunk of a solitary tree in the Tea Garden about 9 feet from the ground. I caught the female as she came out of the hole. After releasing her she flew straight off to the jungle, but returned to feed the young quite boldly within half an hour.—J. I."

Three males, undoubtedly belonging to this the larger species, with black heads and minute white specklings on the forehead.

I have already (Vol. III., p. 61) pointed out the differences that exist between this species and the smaller Southern Indian *cordatus*, Jerdon. At the time I drew attention to the fact that we had sexed a large number of the present species, and that in this case it was perfectly certain that the male had the head black with the speckled forehead, while the female had the greater part of the top of the head buffy white, and that this being so in *canente*, I could not believe that exactly the reverse was (as stated by Dr. Jerdon) the case in *cordatus*.

Mr. Gould, in the XXVIIIth part of the Birds of Asia while quoting my remarks on the subject, says:—"From what I know of other Woodpeckers the ♀ is the bird with the spotted crown." My knowledge, of course, is chiefly confined to the

Woodpeckers of India and the Indo-Malayan region. In all these, to the best of my belief, when any difference in size exists, it is the male and *not* the female that has the larger bill. In all adult *cordatus* that I have examined, the bills of the birds with the speckled foreheads are conspicuously larger than those of the birds with the buffy white forehead and crown. Quite independent therefore of the almost conclusive analogy to be derived from the certainty we have in regard to *canente*, this structural difference strongly confirms my contention. (See also Vol. IV., p. 389.)

166.—Chrysocolaptes sultaneus, *Hodgs.*

"This Golden-backed Woodpecker is among the commonest we have; it remains all the year. It makes a very harsh noise which can be heard a long way off; it is very active; one may dodge round a tree on which one is feeding several times without getting a sight of it.—J. I."

I have already discussed this species when treating of the birds of Upper Pegu (Vol. III., p. 64.) The Cachar specimens, like those of Upper Burma, are too small for the true *sultaneus* and too large for the true *Delesserti*.

Of a fine male from Cachar the bill measures 1·95 at front, and the wing 6·7.

171.—Gecinus striolatus, *Blyth.*

"The lesser Indian Green Woodpecker is very common during the cold weather months and also often seen in the rains.—J. I."

172.—Gecinus occipitalis, *Vig.*

"This Woodpecker is also common.—J. I."

173.—Chrysophlegma flavinucha, *Gould.*

"This Woodpecker is not uncommon, but only met with in dense jungle; it remains all the year.—J. I."

174.—Chrysophlegma chlorolophus, *Vieill.*

"Rather rare; I have only seen it some half dozen times.—J. I."

176.—Venilia pyrrhotis, *Hodgs.*

"Very rare; met with occasionally in thick Jungle.—J. I."

177.—Gecinulus grantia, *McClell.*

"This Woodpecker is rather rare; I have only met it in bamboo jungle.—J. I."

All the preceding precisely similar to Sikhim-killed specimens.

188.—Yunx torquilla, *Lin.*

"I have only seen this bird once. I managed to secure it; it was in a patch of reeds.—J. I."

192.—Megalaima Hodgsoni, *Bp.*

"This Green Barbet is extremely common all the year; it is very noisy.—J. I."

Specimens from Cachar have the wing 5·25, 5·35, and vary in the coloring of the head and neck just as Himalayan and Burmese ones do. (*Vide* Vol. III., p.76.)

195.—Megalaima asiatica, *Lath.*

"The Blue-throated Barbet is rather rare; but I have seen it at all times of the year.—J. I."

198 *quat.*—Megalaima cyanotis, *Blyth.*

"This bird is also very rare.—J. I."

For description, *vide ante*, Vol. III., p. 77. We already had this species from the Bhootan Doars, Tipperah, and Dacca, so that its occurrence in Cachar was only what might be expected.

199.—Cuculus canorus, *Lin.*

"This Cuckoo arrives about the middle of March and departs during August. Tea planters welcome it from its call sounding like 'Want more Pekoe.'—J. I."

209.—Ololygon rufiventris, *Jerd.*

"I shot a specimen of this bird in July 1874, the only one I have seen.—J. I."

212.—Coccystes jacobinus, *Bodd.*

"I have only met with this Cuckoo once, *viz.*, May 1876.—J. I."

A young bird of this species from Cachar in no way differs from young birds obtained elsewhere in India.

215.—Rhopodytes tristis, *Less.*

"This bird is very common all the year round, frequents thickets, generally seen in plains.—J. I."

217 *quat.*—Centropus eurycercus, *Hay.*

"This bird is exceedingly common, frequenting tall reeds and other jungle along the banks of rivers and jheels; breeds from June to September; remains all the year.—J. I."

As I have already stated, Vol. I, p. 453 and Vol. III., p. 83, I do not at present know what to do with these several red interscapularied Coucals; there are the birds from Dacca, the Doon, and Upper Pegu with wings of from 7·6 to 8, which I have called provisionally *intermedius*, and there are the others from Sindh and Sikhim with wings from 9· to 9·5, which I have called *maximus*; both these races have the bills smaller than in what I take to be true *eurycercus* from Sumatra, and both of them have the tails decidedly green. These Cachar birds are similar in color, &c., to *intermedius* and *maximus*, but have the wings about 8·5. Perhaps we may be able hereafter to throw these all into one species in which case they would stand as *intermedius*, or to go a step further and include them all under *eurycercus*.

218.—Centrococcyx bengalensis, *Gmel.*

"This Coucal arrives here about the beginning of June and departs at the close of the rains; breeds from June till September. Like *C. eurycercus* it makes its nest in a clump of tall grass or reeds, the nest resembles a round ball of grass with a hole in the side as an entrance. The eggs are generally six in number, round, and perfectly white.—J. I."

I enter these specimens under this name somewhat doubtfully; they are apparently of the same species as I have from Dacca. Their wings measure from 5·25 to 5·7; the tails are under 7· 0; the tarsi from 1·35 to 1·4; the hind claw from less than 1·0 to 1·1. In no specimen are the upper tail-coverts very much developed.

225.—Æthopyga miles, *Hodgs.*

"This pretty Honey-sucker is very common all the year but I have never seen its nest.—J. I."

This is identical with specimens from Sikhim.

233 *bis.*—Anthreptes singalensis, *Gmel.* (For description *vide* Vol. III., p. 86).

"This Honey-sucker is very common, but is more generally met with in the cold months.—J. I."

254 *bis.*—Upupa longirostris, *Jerd.* (*Vide* Vol. III., p. 89.)

"Very common from January to April, at other times seldom seen.—J. I."

One specimen from Cachar is typical *longirostris*, bill 2·6 at front, plumage very rufous, not a trace of a white antepen-

ultimate band on the crest; wing, 5·95. Another is pale, of the *epops* type, with a conspicuous pale, almost white, antepenultimate band on the crest; bill, 2·25; wing, 5·8. I should certainly be disposed to call this specimen *epops* and very possibly both species should be included in the fauna of Cachar.

258.—Lanius tephronotus, *Vig.*

"Very common all the year.—J. I."

259.—Lanius nigriceps, *Frankl.*

"This Shrike is also very common.—J. I."

261.—Lanius cristatus, *Lin.*

"The Brown Shrike is not nearly so common as the above varieties, although far from rare.—J. I."

269.—Volvocivora melaschistus, *Hodgs.*

"This Cuckoo Shrike is rather rare; frequents quiet jungle.—J. I."

270.—Graucalus Macei, *Less.*

"The large Cuckoo Shrike is very common during the cold weather, generally seen in flocks,—occasionally met with in the rains.—J. I."

Wing, 6·9 and 6·8.

271 *ter*.—Pericrocotus elegans, *McClell.*

"Common during the cold months; I have not seen it at any other time of the year.—J. I."

273.—Pericrocotus brevirostris, *Vig.*

"Very common throughout the year. Always seen in flocks. —J. I."

278.—Buchanga albirictus, *Hodgs.*

"This Kingcrow is extremely common. It breeds all through the summer. It lays 4 or 5 pure white eggs on the top of a few grasses placed in the fork of a tree. It is very pugnacious and attacks birds of all sizes if they approach it.—J. I."

284.—Dissemurus malabaroides, *Hodgs.*

"The Bhimraj is very common, frequenting thick jungle; it often goes in company with other birds which it mimics to perfection. It lays about 4 eggs in a shallow nest made of grass similar to the above; it is very easily tamed. The hill tribes

use the long tail feathers for ornamenting their head dresses. —J. I."

Three specimens sent, all belong to the same race as the Nepal birds with enormous long crests and neck hackles. These are typical examples of the race that Hodgson separated as *malabaroides*.

287.—Artamus fuscus, *Vieill.*

"The Ashy Swallow Shrikes are often seen in flocks throughout the year. I have not seen their nests.—J. I."

290.—Myiagra azurea, *Bodd.*

"This little Fly-catcher is very rare.—J. I."

343.—Myiophoneus Temminckii, *Vig.*

"The Yellow-billed Whistling Thrush arrives about the middle of October and departs during March; it frequents quiet shady ravines, and the rocky banks of rivers. Not uncommon.—J. I."

The specimens sent are less spotted on the wing with white than Himalayan examples are. They thus in this respect approach *M. Eugenei* of Upper Burma, but the bills are as in the Himalayan birds.

351 *bis.*—Cyanocincla solitaria, *Müll.*

"This Rock Thrush only visits us during the cold months, when it is very common.—J. I."

A single specimen sent has three or four feathers amongst the under tail-coverts of the chestnut color that characterizes this species. (See further S. F. Vol. III., 112.)

355.—Geocichla citrina, *Lath.*

361.—Merula boulboul, *Lath.*

"The Grey-winged Black-bird is rather rare. It is only met with during the cold weather.—J. I."

365.—Planesticus atrogularis, *Tem.*

"Very rare; seen only about December and January.—J. I."

373.—Paradoxornis flavirostris, *Gould.*

"I came across two of these birds in thick reeds; I secured them both. I got them in the month of March.—J. I."

Precisely similar to specimens from Debroogurh and the Bootan Doars and Sylhet. See also as to the reed-haunting habits of these birds, S. F. Vol. II., p. 457.

402.—Pomatorhinus schisticeps, *Hodgs.*

"This bird is rather rare, I have seen it all the year round.—J. I."

The specimen sent has the large deep bill of *schisticeps*.

405 *bis*.—? Pomatorhinus hypoleucus, *Blyth*. ? P. Inglisi. *Sp. Nov.*

"This Scimitar Babbler was very common here in the cold weather of 1873-74; I secured only one specimen of it; since that date I have only seen it at rare intervals; it frequents dense jungle with an openish bottom, and is generally found in flocks. —J. I."

I have already given (Vol. III., p. 411) a description of this species by Dr. Jerdon, which does not, however, correspond very closely with either of Mr. Blyth's descriptions. Mr. Blyth says, J. A. S. B., 1844, p. 371:—

"General color fulvescent, olive brown above, lower parts white with traces of dusky terminal spots on the breast; streak backwards from behind the eye and sides of the neck, posterior to the ear-coverts bright fulvous, sides of the breast ashy with white centres to the feathers. The bill dusky, a little whitish at the tip and beneath the lower mandible; legs pale; the feathers of the crown a little squamose. Inhabits Arracan."

In J. A. S. B., 1845, p. 597, Mr. Blyth tells us that the specimen above described was a young one, and he thus describes adults received from Tipperah and Arracan:—

"Color above olive brown, a little cinerascent on the head, and a rufous streak commences behind the eye, and expands into a patch on the sides of the neck beyond the ear-coverts. Lower parts, white, margined with ashy on the sides of the breast; the flanks wholly ashy, with a tinge of brown; wings and tail a little rufescent; the lower tail-coverts more deeply so.

Length, 10 to 11 inches; wing, 4·25; tail, 4; bill to gape 1·75; tarsi, 1·5."

It will be observed that Dr. Jerdon in his description *(loc. cit. sup.)* entirely omits all reference to the rufous streak from behind the eye, and the patch of this color on the sides of the neck. He also tells us that this species likewise occurs in Assam, and has been sent by Hodgson probably from Sikhim. If sent by Hodgson, it was probably sent from the Terai or the Bootan Doars.

The omission by Dr. Jerdon of all reference to the rufous on the sides of the neck, coupled with the fact that his description is clearly an original one, taken, it is to be gathered, from a Sikhim example, is remarkable in so far that this

Cachar specimen exhibits only the very faintest trace of this rufous patch. In fact the specimen before me has no such patch, only the feathers behind the eye and immediately above the ear-coverts and a patch of feathers on the side of the neck behind the ear-coverts, looked at in one light, have a slightly more ferruginous tinge than the rest of the feathers of the neck and a very few of them have an excessively minute ferruginous spot at their tips. Nothing of this would catch the eye, unless the specimen was very closely examined. It seems not at all improbable, therefore, that in this Cachar specimen, and in the specimen described by Dr. Jerdon, we have a distinct representative race or species. If this should prove to be the case the present bird may stand as *Pomatorhinus* (or if Blyth's name be adopted *Orthorhinus*) *Inglisi*.

Blyth originally pointed out certain characteristics of this species, separating it from *Pomatorhinus*. These he subsequently, for the most part, withdrew, his characteristics having been originally taken from a young bird, but there remains the fact that in its broad, comparatively uncompressed, and slightly curved bill, this species, or if there are two or more nearly allied ones, as seems probable, these species, differ conspicuously from the true *Pomatorhini*.

At Mooleyit at an altitude of from 5 to 6 thousand feet, Col. Tickell obtained apparently a third representative race, which Mr. Blyth treated as a variety of his *hypoleucus*, and of this he says, J. A. S. B., 1855, p. 273 :—"Specimen remarkable for having narrow white mesial streaks to the feathers of the nape, chiefly towards the sides of the nape; of which we can perceive no trace in Arracan specimens, and similar well defined, but wider streaks on the dark ash colored sides of the breast which are little more than indicated in the Arracan specimens under examination. Bill to gape, 2·0."

It appears to me that this race is also distinct, and, if so, should stand as *Pomatorhinus* (or *Orthorhinus*) *Tickelli*.

This supposed species is characterized by a bright rufous patch behind and below the ear-coverts, and by a long and conspicuous stripe of feathers running down from the top of the eye on either side of the occiput and nape and expanding into a broad patch on the sides of the neck (behind the ferruginous patch already mentioned), all of which have conspicuous white shaft stripes a little tinged with ferruginous immediately above the ear-coverts.

The following are exact dimensions and description of a male of this species (*P. Tickelli*, nobis) procured at Mooleyit:—

Length, 11·6; expanse, 13·5; tail from vent, 4·35; wing, 4·28; tarsus, 1·6; bill from gape, 1·82; weight, 4 oz.

Upper mandible, legs, feet, and claws, pale brown; lower mandible, horny white; orbital, skin, fleshy tinged blue; irides, dark brown.

Entire upper parts, olive brown, slightly duller on crown and occiput, and with a distinct ferruginous tinge on central tail-feathers and outer webs of quills and rectrices; inner webs of both these latter, dark hair brown; lores, whitish; feathers immediately under the eye and ear-coverts, pale grey brown; the feathers of the ear-coverts, faintly paler shafted; a bright ferruginous patch behind and below the ear-coverts; a conspicuous stripe of broadly white-shafted feathers running backwards from above the eye on either side of the occiput and nape over the ear-coverts and ferruginous patch, already mentioned, and behind this latter spreading over the side of the neck. The white of these feathers above the ear-coverts and ferruginous patch, more or less margined with ferruginous, but behind this patch, pure white, with indications of dark margins. A few feathers of the centre of the nape with white shafts with faintly indicated blackish bounding lines, chin, throat, and most of upper breast and middle of abdomen, white; a band across the breast, and the sides of the breast also white, but the feathers more or less broadly margined with blackish grey, and with here and there a faint ferruginous tinge; flanks and lower tail-coverts, olive, with a faint ferruginous tinge most noticeable on the latter, and many of the feathers of the former with narrow white shaft stripes.

The following are the measurements (from the skin) and a description of the Cachar specimen before me which I provisionally separate as *Pomatorhinus Inglisi* :—

Length, 11·25; wing, 4·2; bill from gape, 1·7; tail, 4·3; tarsus, 1·62; hind toe and claw, 1·15; mid toe and claw, 1·35.

The culmen and basal portion of the upper mandible horny blackish brown; tip and lateral portion of upper mandible (except at the base) and greater portion of the lower mandible, pale whitey brown or greyish.

Legs, feet, and claws, pale; may have been fleshy; may have been greenish brown.

Entire upper parts rich olive brown, purer brown on the head with a decided ferruginous tinge on the back becoming very conspicuous on the upper tail-coverts; the tail obsoletly barred, and with a deep ferruginus tinge, and all webs of the quills, as are the outer margins of the outer tail feathers near their bases, with a lighter and yellower ferruginous tinge; inner webs of the primaries, dark hair brown; ear-coverts and cheeks, a dingy grey brown; some of the feathers with inconspicuous lighter shaft streaks.

The feathers behind the eye and immediately above the ear-coverts, and those behind the ear-coverts with a very faint rusty tinge, and a very few of them with an excessively minute ferruginous speck near the tip. The chin, throat, breast, and middle of abdomen, pure white; the white of the lower portion of the throat and breast bounded by a dark sepia brown band, some of the feathers of which have broader or narrower white streaks down the shafts. A few of the feathers of the sides of the breast margined at the tips with brown; sides, flanks, and tibial plumes, a paler and greyer sepia brown with a slight rufescent tinge on the outer side of the tibia; lower tail-coverts ferruginous brown, much the same color as the upper tail coverts, but perhaps slightly brighter.

410.—Garrulax ruficollis, *Jard. & Selb.*

"The Rufous-necked Laughing Thrush is very common throughout the year; it affects reed jungle.—J. I."

412.—Garrulax pectoralis, *Gould.*

"This Laughing Thrush is very common during the cold season. I have occasionally observed it during the rains. —J. I."

The only specimen sent is exactly intermediate in size between typical *pectoralis*, (wing, 6) and typical *moniliger* (wing, 5.) Bill, legs, and feet are also similarly intermediate in dimensions between these two species, and it is a mere toss-up under which of the two it should be recorded.

439.—Chatarrhæa Earlei, *Bly.*

"The striated Reed Babbler is exceedingly common during the whole year. It breeds from March onwards, making its nest in longish grass.—J. I."

451.—Criniger flaveolus, *Gould.*

"This pretty Bulbul arrives here about the beginning of October, and departs during March; it is not uncommon.—J. I."

The specimens sent are precisely similar to those from Darjeeling and make no approach to the Pegu Hill race, *C. griseiceps*, nobis.

456.—Rubigula flaviventris, *Tick.*

"The Black-crested Yellow Bulbul remains here all the year, but is rather rare.—J. I."

460.—**Otocompsa emeria**, *Shaw.*

"The Red-whiskered Bulbul is exceedingly common throughout the year.—J. I."

The Red Eye Tuft in the specimen sent is very short.

461 *bis.*—**Molpastes intermedius**, *Hay.*

"This is the commonest of all our bulbuls. Breeds during the rains.—J. I."

The specimen sent is the same size as *pygmæus* with the same conspicuous brown ear-coverts, but it has the entire breast brown, and the black of the head does not descend below the occiput, and it is therefore truly intermediate between the Bengal and Madras bulbuls.

463 *ter.*—**Phyllornis chlorocephalus**, *Walden.* (Described S. F. III. 127.)

"This pretty Green Bulbul is not uncommon, being met with at all times of the year.—J. I."

469.—**Irena puella**, *Lath.*

"The fairy blue bird is not rare, although, not often met with; it frequents quiet shady nooks and is very timid. I have often observed it feeding on a plant of the *Solanum* family. —J. I."

In the two males sent the upper tail-coverts fall short of the end of the tail by 1·2 and 1·5 respectively; the lower tail-coverts, 1·1 and 1·3.

471 *ter.*—**Oriolus tenuirostris**, *Blyth.*

"This Oriole is very rare. I have only seen it a few times during the cold season.—J. I."

This species is fully described, Vol. III., p. 131.

472.—**Oriolus melanocephalus**, *Lin.*

"This Oriole is very common in the villages, but it is not often met with at any distance from cultivation.—J. I."

A typical specimen. (*Vide ante*, Vol. III., p. 133.)

475.—**Copsychus saularis**, *Lin.*

"Very common. Breeds during March, April, and May. —J. I."

This specimen is not quite typical; it approaches the Malayan *C. musicus*, Raffles, in having the 4th feather of the tail (counting from the exterior) with a broad dusky black margin to the inner webs and a narrow black one to the outer webs.

476.—Cercotrichas macrourus, *Gmel.*

"I have only observed the Shama during the cold weather. It is rather rare, and very timid; it frequents only quiet shady jungles.—J. I."

483.—Pratincola indica, *Blyth.*

"Very common.—J. I."

486.—Pratincola ferrea, *Hodgs.*

"Although not so plentiful as the former, this Stone Chat is quite common.—J. I."

497.—Ruticilla rufiventris, *Vieill.*

"This species is common along the hill streams. I have not observed it on the plains.—J. I."

The specimen sent, although not dated, was clearly killed late in March or early in April. It is in what I call the ante-nuptial stage; the whole head, neck, breast, and upper back, black; the only remnant of the early spring plumage, being a dull grey line on either side of the crown, forming an inconspicuous superciliary line.

I have carefully studied a really enormous series of this species killed at different seasons of the year in a vast number of localities, and I make out six tolerably distinct stages of plumage, *viz*:—

I.—Winter plumage. Black of upper surface entirely veiled by ashy, rufous ashy, or brownish rufous, tips to the feathers. Black of breast more or less ditto.

II.—Early spring stage. Tippings of the feathers disppearing first from breast, next from back, and lastly from the head.

III.—Ante-nuptial stage. Whole head, neck, breast, and upper breast pure black.

IV.—Nuptial or *erythroprocta* stage. Black duller; a greyish white band across the forehead (dividing off the black of the base of the forehead as a black frontal band), with a grey shade extending backwards on to the crown.

V.—Early autumn, or *phœnicuroides* stage. Broad conspicuous black frontal band; throat, breast, sides of neck, pure black. Front of head pale blue grey, growing duller on occiput. Back more or less veiled with grey or rufous ashy tippings.

VI.—Late autumn stage. Frontal band not showing out conspicuously; crown and back unicolorous. Black of breast, &c., more or less veiled with grey or rufous ashy tippings.

In the early spring stage, especially towards its close, some specimens very closely resemble the early autumn or *phœnicu-*

roides stage; the head still remains grey, but the frontal band and breast have become pure black, and only a little rufous ashy tipping remains on the feathers of the back.

This appears to be rather uncommon, as a rule the tippings disappear gradually, not bringing out the frontal band distinctly. It is curious again that some few of the autumn birds do not appear to pass through the *phœnicuroides* stage at all, but resemble birds in the normal early spring stage.

Of course, as in all species, some individuals assume any particular stage of plumage a little earlier, and some a little later, and in some the tints are pure throughout, in others duller, but the perfect manner in which my very large series when arranged chronologically falls into groups convinces me that the changes of plumage are normally as above indicated.

505.—Rhyacornis fuliginosa, *Vig.*

"This species is found in places similar to the above, *R. rufiventris*.—J. I."

585.—Henicurus immaculatus, *Hodgs.*

"This Forktail is common during the cold weather; it is also seen at times during the rains along mountainous streams.—J. I."

594 *bis*.—Budytes citreola, *Pall.*

"This Wagtail is common throughout the province of Cachar.—J. I."

One specimen in nearly full breeding plumage, showing conspicuously the black cowl on the back of the neck.

608.—Cochoa viridis, *Hodgs.*

"This bird is very rare. I have only met with one specimen. In February 1874, I flushed a bird in some low cane jungle. It settled on a small tree and I left it there and went back to some men who were making charcoal. I got an old gun from them loaded, they said, with shot. I found my bird still on the same tree, but I made some three or four essays before I got the gun to go off, but when it did go off it went with a vengeance dropping both myself and the bird.—J. I."

An adult male of this comparatively rare species, wing 5·65.

673.—Cissa speciosa, *Shaw.*

"This Jay is rather rare; it frequents low quiet jungle. In April last a Kuki brought me three young ones he had taken from a nest in a clump of tree jungle; he said the nest was some 20 feet from the ground and made of bamboo leaves and grass.— J. I."

674.—Dendrocitta rufa, *Lath.*

"This Magpie is very common in all the neighbouring villages, but I have not often seen it in the jungles. It remains all the year and breeds during April and May.—J. I."

676.—Dendrocitta himalayensis, *Bly.*

"This Treepie arrives at the beginning of the cold weather and departs about the end of March. It is rather rare.—J. I."

683.—Sturnopastor contra, *Lin.*

"The Pied Pastor is very common all the year. It breeds during March, April, May, and June, making its nest on any sort of tree about 15 feet or more from the ground; about 100 nests may often be seen together. It prefers nesting on trees in the open fields. I do no know the number of its eggs.—J. I."

A typical specimen, making no approach to *superciliaris*.

684.—Acridotheres tristis, *Lin.*

"The commonest of all birds here. Breeds throughout the summer months. It makes its nest generally in the roofs of houses or in holes in trees. It lays about five eggs of a very pale blue colour.—J. I."

686.—Acridotheres fuscus, *Wagl.*

"This Mynah is very common all the year, but I have never seen its nest.—J. I."

688.—Temenuchus malabaricus, *Gmel.*

"The Grey-headed Mynah is often seen in large flocks during February and March. It does not remain here after that date to my knowledge.—J. I."

690 *ter*.—Calornis affinis, *Hay.*

"This Tree Stare is rather rare. It breeds about April in the holes of dead trees; when the young are able to fly it departs. It again returns about the middle of February.—J. I."

Identical with specimens from Tipperah.

693.—Eulabes javanus,* *Cuv.*—? *E. musicus.* Wagl. (If distinct, E. intermedia, *Hay*, or possibly, sumatranus, *Less.*)

"This Hill Mynah is common in the hilly district. It breeds in the holes of trees during April, May, and June.—J. I."

* This seems to be generally quoted as *javanicus*, Osbeck, but Osbeck's name is pre-Linnæan, as is also *major* of Brisson. If we lump the species probably Wagler's name (1827) and not Cuvier's (1829) should stand.

698.—Munia rubronigra, *Hodgs.*

"This Munia is very common among the rains. It breeds in June, July, and August, making its nest in a clump of long grass; it lays from six to eight small white eggs.—J. I."

699 *quat.*—Munia nisoria, *Tem.*—? M. Inglisi. *Sp. Nov.*

"This little bird arrives about the middle of October and at once begins nesting. It makes its nest in the bottom of a clump of grass and lays as many as nine small white eggs. I have taken its nest as late as the 25th of December.—J. I."

The specimen sent is nearer *nisoria* than to any yet described species; it differs equally from *punctulata*, Lin, of Continental India, from *M. sub-undulata*, Godwin-Austen of the Munipore Valley (*vide ante*, Vol III., p. 398), and from the Moulmein and Tavoy, *M. superstriata*, Hume, (Vol. II., p. 481, note) in the entire absence of any golden yellow, or olive yellow tint or tinge on the rump, upper tail coverts, and tail. It agrees with the two latter in having the markings of the breast more rufous than in the continental species. At the same time it differs from *nisoria* in having the tail, rump, and upper tail-coverts a pale earth brown instead of grey, the coverts being narrowly fringed with brownish white.

It is very curious our obtaining in Cachar a race so closely allied to *nisoria*, when, from the countries all round about this, the species that occur have more or less of the yellow tint on upper tail-coverts, and tail that characterize the *punctularia* sub-group.

If considered distinct it should stand as *M. Inglisi.*

704.—Estrilda amandava, *Lin.*

"This little bird arrives about the beginning of October and departs in March. I have not seen its nest.—J. I."

776.—Osmotreron Phayrei, *Bly.*

"This Green Pigeon frequents thick jungle, and is very common; the natives say it breeds on the hills.—J. I."

778.—Sphenocercus sphenurus, *Vig.*

"I have only met with this Pigeon once, *viz.*, in March 1876.—J. I."

780.—Carpophaga ænea, *Lin.*

"The Imperial Green Pigeon is common. It breeds during the rains. The only nest I have seen was in a thicket about

30 feet from the ground. It contained 2 young birds newly hatched. The nest consisted of a very few sticks and a few stiff grasses.—J. I."

The fact of the nest containing 2 young ones is noteworthy. (See Nests and Eggs, Rough Draft, p. 496, for the number of eggs laid by other *Carpophagas*, &c.)

793.—Turtur meena, *Sykes.*

"This Turtle Dove is rather common throughout the year. I have not seen its nest. It is often met with along the banks of rivers.—J. I."

The under tail-coverts are a less dark slatey grey than in what I consider the typical *Turtur meena*.

798.—Chalcophaps indica, *Lin.*

"The Emerald Dove is rare, I have only seen it in jungle, it flies at a great rate, and it is difficult to procure a bird without losing half of its feathers, as they are so easily knocked out.—J. I."

803 *quat.*—Polyplectron chinquis, *Tem.*

"The Peacock Pheasant is quite common all over the district. I have not yet obtained a female. It is very shy and seldom seen, but may be heard calling nearly all the year during the early morning. It breeds about May. The male when calling perches on a branch about 6 feet from the ground, and is easily approached by following the sound.—J. I."

I am very uncertain as to what specific name this species should bear. Two males were sent of this species; the specimens agree precisely with those obtained in the Bootan Doars. This species has also been found in various localities in Assam, in Sylhet and Upper or Native Burma, in the Arracan Youma, namely, the hills dividing Arracan from Pegu, and the Youma Doung, the ridge that divides Central Tenasserim from Siam. How far south along this range it extends is uncertain. Davison neither heard of nor saw it as far south as Malewoon.

This bird is not included by Dr. Jerdon and has not yet been described in "Stray Feathers." The following is a description of the male of which I have many specimens. Of the female I have never yet obtained a specimen and can therefore say little about it:—

Male.—Length, 25 to 28, according to length of the tail which varies a good deal in different specimens; wing, 8 to nearly 9; tail, 14 to 17; tarsus, 2·8 to 3·1; bill from gape, 1·2 to 1·3.

Bill, dark horny brown on upper mandible, and tip of lower mandible; ceral portion, and sides of upper mandible and greater part of lower mandible, fleshy yellow; bare orbital space yellowish; irides, yellow; legs and feet, plumbeous horny. The males generally have two spurs on each leg, sometimes three, sometimes three on one leg and two on the other. The spurs are not very long, rarely exceeding 0·5, often much shorter. In younger birds they are sharp and slender, but in very old birds they appear to become massive and blunt.

The chin and throat are white; the whole of the top and back of the head are clad with fine disunited-webbed feathers, which, on the forehead and crown, especially the former, are elongated and erected into a brush-like crest, more or less recurved to the front. In color these feathers are grey brown, very finely barred with greyish white. The nape and back of the neck are similar, but browner and less finely barred; the breast and sides of the neck are hair brown, margined at the tip with a row of brownish white spots, so closely set as to form almost a continuous line. The rest of the feathers are closely barred with similar lines of spots following the same curve as the tip of the feathers; abdomen and vent very similar, but with the spots less regularly gathered into bars; back, wings, except primaries, scapulars, interscapulary region, rump and upper and lower tail-coverts and tail, brown, varying slightly in tint in different specimens, but being normally, what I should call a dull hair brown, profusely spotted or speckled with white or brownish white spots, having, specially on the upper tail-coverts and rump, a tendency to be gathered more densely about the tips of the feathers so as to form the semblance of a terminal bar there; the spots are largest and densest on the rump and lesser tail-coverts, smallest on the wings. The scapulars, the wing-coverts, tertiaries, and interscapulary region are all tipped with white, inside which is a more or less round eye, consisting of a narrow dark ring enclosing a metallic patch, purple in most lights, but in some lights green, changing to purple towards the tip of the feathers; these spots are largest on the tertiaries where they may be 0·6 in diameter and smallest on the lesser wing-coverts, and some of the interscapulars, when they do not exceed 0·25. Sometimes, besides the the white tipping there are traces of a white band encircling the dark one. The tail (which when perfect has at least 20 feathers and is very much rounded, the external feather being some eight inches shorter than the central one) has on each feather at a certain distance from the tip, say two inches in the central feathers, and 1·25 in the exterior ones, a pair of twin oval metallic spots, one on each web, surrounded by a dusky black

band and this again by a rather broader light drab brown halo, obsolete towards the lower margin. One of these metallic spots on the central tail feathers measures about 0·8 long by 0·5 broad; on the antepenultimate feather, the spots may be about 0·4 by 0·5, in fact they grow rather rounder and smaller as the feathers retreat from the centre. The greater upper tail-coverts have the tips festooned, that is to say, each of the webs projects in a curve beyond the shaft; each of these bears a couple of eyes similar and similarly situated to those on the tail feathers, but smaller. In most lights the eyes of the tail feathers are beetle green, but it is possible so to hold them that they are entirely dull purple. The eyes on the upper tail-coverts are very similar in this respect, but are purple in more positions, and a brighter purple than those of the tail. The primaries are a plain warm brown with a few buff speck-lings chiefly on the outer webs of the earlier, and towards the tips of the later ones.

811 *bis.*—Euplocamus Horsfieldii, *G. R. Gr.*

"This pheasant is very plentiful along the edges of cultivation and the banks of rivers. It breeds during April and May.—J. I."

This is another species not described by Dr Jerdon and which has not yet been described in STRAY FEATHERS. We know it at present as common in the Khasia Hills, Sylhet, Cachar, Tipperah, and Chittagong. It probably extends into the northern portion of Arracan, but I have not yet received specimens thence. *Lineatus* and *Vieilloti* are quite distinct and cannot for a moment be mistaken; the first has already been fully described when treating of the birds of Upper Pegu, (Vol. III., p. 165); the latter will be fully described in our paper on the birds of Tenasserim. But it may be convenient to give a brief diagnostical table of the other three species of *Euplocamus* that occur within our limits.

	Crest.	Rump and upper Tail-coverts.	Breast.
E. albocristatus ♂.	... White.	Broadly tipped white.	Greyish white, feathers sharp pointed.
E. melanotus,* *Blyth* ♂.	... Black.	Black.	Ditto.
E. Horsfieldii ♂.	... Black.	Broadly tipped white.	Black, feathers ordinary.

* I think the name *melanotis* usually applied to this species arises out of a misprint. Blyth himself, J. A. S., B., Vol. XVII., p. 694, called it *melanotus*, remarking that it had "no white on rump" and so he designates it. Cat. A. S. B., 1469. The black back is the characteristic of this species; all three, on the other hand, have black ears. Elliot, I see, P. Z. S., 1871, p. 138, prints it *melanotis*, but this, I think, is a misprint, and we should either keep it as Blyth wrote it or adopt the more correct form *melanonotus*.

The females of the three species are much more similar, and they vary so much that I find it impossible to set forth their differences in a brief table like that above given for the males.

Generally it may be said that the females of *albocristatus* are lighter, those of *melanotus* darker, and those of *Horsfieldii* more rufescent. In *albocristatus* the crest of the female, when fully developed, is generally longer and greyer than in either of the other two; the tail feathers are less rufescent and much more boldly vermicilated. The pale tippings to the breast feathers and coverts contrast much less strongly, as a rule, than do the similar tippings in *melanotus*. In *melanotus*, the rump and upper tail coverts, as a rule, harmonize well with the concontral tail feathers. In *Horsfieldii* the former are much lighter and more olive, the latter darker and more ferruginous and thus trast together strongly. As a rule the central tail feathers of *Horsfieldii* are almost perfectly plain, and are deep ferruginous; those of *melanotus* deep brown with a ferruginous tinge and feebly vermicilated; those of *albocristatus* olive brown with only a faint ferruginous tinge and boldly vermicilated; but none of these points hold absolutely good, and though by bearing all in mind any specimen can be discriminated at once, I have failed, after examining a large series, to detect any one single positive constant difference in the dry skins that can by itself be relied on to separate specimens.

The adult male in the present species is from 23 to 24 inches in length.

The wing, 9 to 9·25; the tail, from 9 to 10; tarsus, about 3·25; bill from gape, 1·4 to 1·55.

The males have one sharp spur on each leg varying in length from 0·75 to 1·0 according to the age of the bird.

Entire plumage is black, with a rich blue gloss over head, neck, breast, back, rump and shorter tail-coverts, and the feathers of both the latter are conspicuously tipped with pure white.

The female is a rich olive brown. The chin and throat white or whitish; the feathers of the neck and sides of the head generally with a greyish tinge towards the tips; the body and wings with a decidedly rufescent tinge; all the feathers of the lower surface and the coverts of the wings tipped paler, in some specimens most conspicuously so, the feathers of the lower surface also white or brownish white shafted. The visible portion of the rump and all but the longest upper tail-coverts a paler and more fulvous olive brown; the central tail feathers, and generally also the longest of the upper tail-coverts, deep ferruginous. The rest of the tail-feathers black, sometimes margined or tinged with ferruginous,

while sometimes parts of the outer webs of even the central tail feathers are blackish; the lower tail-coverts are generally deep brown, almost blackish in some, tinged strongly with ferruginous in others. The quills are brown, darker on the inner webs tinged with olive, or ruddy olive on the outer webs, always most rufescent on the secondaries and tertiaries, very often quite plain, at other times very finely and inconspicuously speckled towards the tips of the tertiaries and some of the secondaries with a lighter tint; the central tail feathers are perhaps most generally plain, but in many specimens they are very finely vermicilated, chiefly on the inner webs, where they are usually paler, with dusky. Very often the tips of the crest feathers are much more rufescent than the rest of the head. These birds are so extremely variable that no two of them appear to be exactly alike.

The females are somewhat smaller than the males, but I have no measurements of these recorded in the flesh.

812.—Gallus ferrugineus, *Gm.*

"The common jungle fowl is very common. It breeds throughout the whole summer.—J. I."

824 *bis.*—Arboricola atrogularis, *Blyth.*

"This partridge is not uncommon on the hills; it is seldom seen except in dense jungle. It remains all the year.—J. I."

This species which we only as yet know of from the western portions of Assam, Sylhet, Cachar and Tipperah (though it is said to have occurred in Chittagong) has been already noticed in the short key to our eight Indian species of *Arboricolas* or *Arborophilas* (Vol II., p. 449), but it may be as well to give a detailed description of the species here, as it is not included in Dr. Jerdon's work.

Length, 11; wing, 5·5 to nearly 6; tarsus, 1·5 to 1·7; bill from gape, 0·9 to 1·0; tail, 2·25 to 2·5. Bill, black; the legs and feet appear to have been orange fleshy; a large bare orbital space, red.

The lores and lines running from them, over and below the bare eye space, behind which they meet and run down on either side of the nape, black. A band from the base of the lower mandible running backwards over cheeks and ear-coverts white, the posterior portion often tinged buffy. The forehead grey. A line on either side of the forehead immediately above the black line first described running backwards with it on either side of the nape, white anteriorly, buffy posteriorly; crown and occiput greyish olive, each feather with a black shaft streak expanding at the tip into a nail-head spot;

nape, rich fulvous buff, each feather with a black spot towards the tip; chin and upper throat, and sides of the neck immediately below the cheek and ear patch, black; rest of the sides of the neck, like the nape. A white patch at the base of the throat, the feathers with oval black shaft spots; entire breast French grey; the feathers nearest the white throat patch with large oval shaft stripes; lower part of the breast paler, centre of abdomen nearly pure white; flank feathers greyish, tinged with rufescent olive, with white oval subterminal shaft spots and generally a little black beyond these; lower tail-coverts olive with black subterminal spots or bars, and mostly broadly tipped paler. The entire interscapulary region, back, rump, and upper tail-coverts a rich, slightly greenish, olive, all the feathers narrowly tipped and transversely barred with black. The subterminal bar expanding at the shaft in many of the feathers of the rump and upper tail-coverts, into a sort of diamond shaped or arrow head patch. The lesser coverts mostly like the back, but often with more black about them. The scapulars similar, but broadly tipped with bright or deep ferruginous, preceded, especially in the case of the longest scapulars, with very broad velvet-black bars. The primaries and their greater coverts are plain brown, slightly margined at the tips with fulvous. The tertiaries are ferruginous, freckled and vermicilated with brown, with a pale patch towards the tips on the outer webs and an imperfect black bar beyond this. The secondaries are brown like the primaries, only rather darker and with an increasingly wide margin to the outer webs similar to the tertiaries.

The tail feathers are olive brown vermicilated with black. The lower wing-coverts along the edge of the wing are dark brown, most of the rest of the lower coverts white; many of the greater secondary and tertiary upper wing coverts approximate in color and markings to the scapulars.

I do not yet know whether the plumage in both sexes is precisely alike, all my specimens are similar, but they have not been sexed and they may be all males.

In *brunneopectus*, as we know, both sexes are precisely alike.

832.—Turnix pugnax, *Tem.*

"The Bustard Quail is plentiful during the rains in grass lands. It breeds in June, making a very shallow cavity for its nest. It lays about 4 or 5 eggs of a brownish grey colour.—J. I."

855.—Lobivanellus indicus, *Bodd.*

"The Red Wattled Lapwing is rare in this district; a few stragglers are sometimes seen during March and April.—J. I."

These specimens are true *indicus* and make no approach to the Burmese *L. atronuchalis*, Blyth.

857.—Hoplopterus ventralis, *Cuv.*

"The Indian Spur-winged Plover is common along the banks of river. I have not seen its nest.—J. I."

870.—Gallinago stenura, *Kuhl.*

"This Snipe is extremely common, frequenting marshy lands. —J. I."

873.—Rhynchæa bengalensis, *Lin.*

"The Painted Snipe is rarely obtained here. Out of some 500 of the former variety which I shot last autumn I only obtained two female painted ones.—J. I."

891.—Rhyacophilus glareola, *Lin.*

"This Sand-piper is found wherever there is water throughout the season.—J. I."

900.—Parra indica, *Lath.*

"The Bronze-winged Jacana is quite common on jheels and marshes. I have not seen its nest.—J. I."

901.—Hydrophasianus chirurgus, *Scop.*

"The Pheasant-tailed Jacana is extremely rare. I have only obtained one specimen.—J. I."

905.—Gallinula chloropus, *Lin.*

"The Water Hen is very common.—J. I."

907.—Erythra phœnicura, *Penn.*

"Very common.—J. I."

924.—Ardea purpurea, *Lin.*

"The Purple Heron is very common during the rains.—J. I."

926.—Herodias intermedius, *Hasselt.*

"This Heron is only seen here during the rains.—J. I."

927.—Herodias garzetta, *Lin* ? H. nigripes, *Tem.*

"The Little Egret is very common along the rivers and jheels.—J. I."

930.—Ardeola Grayi, *Sykes.*

"The Pond Heron is very common.—J. I."

931.—Butorides javanicus, *Horsf.*

"The Little Green Bittern is also common.—J. I."

932.—Ardetta flavicollis, *Lath.*

"The Black Bittern is rather rare. Seen during the rains. —J. I."

933.—Ardetta cinnamomea, *Gmel.*

"The Chestnut Bittern arrives about June and departs at the close of the rains.—J. I."

951.—Nettapus coromandelicus, *Lin.*

"This Teal is common during the rains.—J. I."

952.—Dendrocygna arcuata, *Cuv.*

"The Whistling Teal remains here all the season. I have never seen their nests.—J. I."

962.—Dafila acuta, *Lin.*

"Very rare. I have only obtained one specimen.—J. I."

964.—Querquedula crecca, *Lin.*

"This Teal is rather rare. I have obtained it only on the rivers.—J. I."

975.—Podiceps minor, *Gmel.*

"I obtained two specimens of this little Grebe in March last on a small sheet of stagnant water.—J. I."

985.—Sterna seena, *Sykes.*

"This Tern at times comes up the river, but only on a flying visit.—J. I."

1007.—Graculus pygmæus, *Pall.*

"The Little Cormorant is very common all over Cachar. —J. I."

Observations on Falco Hendersoni, Hume.

By W. E. Brooks.

When Mr. Hume first shewed me the type of *Falco Hendersoni*, I observed that it was a good and most remarkable species. I had seen a good number of Punjab Sakers, as well as European examples, but this splendid Yarkand Falcon had a general aspect quite dissimilar to that of any Saker of the well-known species. To this conviction I have adhered, although I have been frequently assured that the bird was only a stage of *F. sacer*.

Falco Hendersoni has been opposed by Mr Gurney and by Mr. Sharpe. Mr Sharpe's remarks on it are to be found at page 419 of his Catalogue of the Accipitres. One remark I must here quote:—"In this state of plumage the bird (F. *sacer*) is *F. milvipes* of Hodgson, and *F. Hendersoni* of Hume." I have examined Hodgson's *original* drawing of *F. milvipes*, and found it to be the common *sacer*, as far removed as could be expected from the affined *F. Hendersoni*.

I think the question of identity of species is set at rest by the observations of Lieutenant-Colonel N. Prjevalsky, to be found in his paper, entitled. "The Birds of Mongolia, the Tangut country, and the solitudes of Northern Tibet, published in Ornithological Miscellany for January 1877, pp. 149-150." I shall quote the article at the close of this paper.

Mr. Sharpe says, the fully adult or aged Saker is very rare, indeed. This being the case, how was it that all the birds met with by Colonel Prjevalsky, were in the *Hendersoni* plumage? Had the two species *sacer* and *Hendersoni* been identical, there ought to have been *one* or *two* birds seen in *sacer* plumage, to say the least. But, unfortunately for the theory of identity, there were not. This fact alone, proves the validity of Hume's species, far beyond the reach of any Darwinian argument that can be brought to bear upon it; and it also shews how worthless mere theories are in connection with natural history. We are all more or less fond of theory, and great strides can it would seem be taken, at all events in ornithology, with the barest possible assistance of facts. Mr. Darwin has proved that we are all descended from monkeys; the conclusion is received, and delights the most eminent naturalists, but the *specific* value of that odd anomaly man has not yet, I believe, been denied; no doubt, the descent of *Hendersoni* from *sacer* (or *vice versâ*), can be *equally* satisfactorily demonstrated, but this will scarcely affect for practical purposes the specific distinctness of the two forms.

The article I have referred to is as follows :—

"13.—Falco Hendersoni, *Hume*.

"Socol Hendersona.

"*Falco Hendersoni*, Henderson and Hume, Lahore to Yarkand, pl.

"The various stages of plumage, according to age and local variation, make it very difficult to distinguish the different species of Falcons; so much so, that even the best ornithologists differ in this respect in their opinions. To one of such disputed species belongs *Falco sacer*, which forms several varieties in eastern Europe and throughout Asia. In the regions of our travels, we did not observe (or at least did not obtain) the true *Falco sacer*, Schleg., which is so beautifully figured by Schlegel in his Traite de Fauconnerie, pl. V., and by Gould in his 'Birds of Asia,' Part XX. Everywhere we found only the species described by Hume, in 'Lahore to Yarkand' under the name of *Falco Hendersoni*. We obtained only four specimens (two males and two females), of which (two males and one female) completely correspond with Hume's description, with only insignificant differences. The second female which is rather younger than the three former specimens (this is to be distinguished by the blue and not yellow legs), differs from them by the absence of a fully striped tail, as only incomplete reddish yellow bands are perceptible on the inner webs of the tail feathers, whilst the outer webs are marked with spots of the same colour as the bands. Again, the yellow streaks of the female *F. Hendersoni* are replaced in the present specimen by spots of the same colour. The breast is pied, on account of the large dark brown spots, just like the true *F. sacer*; whilst on *F. Hendersoni*, as also on our three specimens, the breast is milk white, marked with narrow and triangular small spots. The bill is black at the point, and bluish at the base, and has only on the lower mandible a yellow mark, which colour is predominant on both mandibles in our three specimens. Consequently the young plumaged *F. Hendersoni* is nearer to *F. sacer*, which, however, is sufficiently developed to be separated as a species.

Measurements :—

	Length.	Width.	Wing.	Tail.	Gape.	Tarsus.	Middle toe.
♂	18·5	33	14·8	7·8	1·23	1·9	1·78
♀	22·5	37	16·6	9·3	1·27	2·16	2·0

"Henderson's Falcon was found by us wherever we went, from Kiachta down to the sources of the Yantze-Kiang; but it was most numerous in winter in the Zachar country and

about the Koko-nor, which localities abound with alpine hares; and these, at least in winter, form its principal food.

"This Falcon also attacks birds, such as *Syrrhaptes paradoxus*, usually when the latter are drinking. Once it threw itself upon a hare which we had started, and followed it, constantly swooping down upon the animal and hitting it with the beak; after every blow the hare stopped and went on running after a time, until we lost sight of it, and consequently could not tell how the attack terminated.

"The Mongols and Tanguts do not train these Falcons for sport; at least we never saw it during our travels."

The above notice of *Falco Hendersoni* is very interesting. It contains one error, which however is not important. In their attack, when on the wing, Falcons use the hind claw, not the bill. I have seen a Peregrine cut off the head of a pigeon with a single blow of the hind claw.

Mr. Sharpe is, I think, wrong in his conclusion that it takes a series of moults to mature a Falcon. Mr Hancock has always contended that these birds mature at once, when they cast their first or nestling plumage;* by this, of course, I do not mean the down, which I do not count as a plumage.

His experiments, and very fine collections of large Falcons, bear out his conclusion, that variation in adult Falcons is due to complexion, and not to age. With Eagles, it is however quite different; they take some years to fully mature.

A Note on the Nidification of Harpactes Oreskios.

By C. T. Bingham.

On the 21st February 1877, as I was on the march from the village of Toungdee to the village of Tagoondine on the southern bank of the Winges River in the Tennasserim Provinces, I was so fortunate as to find a nest of this handsome Trogon.†

My order of march was, generally, first my guide, next myself, then my interpreter, lastly my peons in single file, as the paths through the dense forests here are narrow. On this occasion, however, I had loitered behind to shoot a jungle fowl that had been crowing lustily some distance off the road: and my men were waiting for me. As I came up, I noticed something like the tail of a bird sticking apparently out of a

* I am not sure that I rightly understand this, but my belief founded on a very large series of observations is that *F. jugger*, for instance, is fully 3 years old, before it assumes what I consider the perfect adult plumage.—Ed., S. F.

† Davison has also taken 3 nests this year of this species.

dead branch in a zimbom tree *(Dillenia pentagyna)* right over the head of one of the peons. Examining it closer I saw it was a long-tailed bird of some kind seated in a most uncomfortable position seemingly in, or rather on a hollow in the branch, its head drawn in and its tail sticking over its back. As soon as it observed me watching it flew off, and then with a great jump of my heart into my mouth I saw it was a female *Harpactes oreskios*. I was up the tree in a second, telling one of my men to watch the bird: the branch was not 12 feet above the ground, and I almost tumbled off in my delight, on finding a cup-shaped hollow on the upper side, some three inches deep by three and a half in diameter, containing two roundish, creamy white eggs, quite fresh, laid on the bare wood.

I looked round now for the bird, and saw her, joined by her mate, seated on a bamboo not ten yards off. Slipping down the tree quietly I took my gun and fired, hoping to bring both down as they were seated close together, but succeeded only in securing the male.

It rather surprised me to find a nest, or even to see Trogons in such open dry forest as I was going through; and the nest too in a tree on the very border of the high road (though it is a mere pathway after all) from Maulmain to the Shan country.

I cannot say whether the hollow in the dead branch was made by the Trogons themselves or not: the wood was rotten enough to be easily pecked out by any bird, but I rather suspect the cavity must have been hollowed out first by a Woodpecker, and that then a portion was afterwards broken off or more probably fell off.

Novelties.

Æthopyga Waldeni.

Like Æ. saturata, *Hodgs.* and *Æ.* sanguinipectus, *Walden, but sides of neck, maroon; entire chin and upper portion of throat, non-metallic black; entire crop and two narrow lines leading up thence to gape, metallic purple; entire abdomen, vent, and lower tail-coverts, slightly yellowish olive green.*

This species is clearly distinct from *saturata*, and also, if Lord Walden's description (A. and M. N. H. June 1875, p. 400, republished, S. F. III. 402) is accurate, equally so from *sanguinipectus*.

Of *sanguinipectus* Lord Walden says :—"All the chin, throat, and two streaks diverging from the throat and descending to the breast, metallic violet blue." Now, in the present species, the entire chin and the extreme upper portions of the throat are non-metallic black, the whole of the rest of the throat, in fact the crop, is metallic purple, and from this two narrow streaks of the same colour run upwards to the gape, bounding on either side the dull black chin and extreme upper throat.

Then Lord Walden says :—"The remainder of under-surface, pale yellow; many of the lower breast feathers being centred and streaked with blood red." In the present species just the upper breast below the black line that bounds the huge purple crop patch is pale yellow, and many of the feathers are centred with orange red, but the whole of the rest of the lower parts are olive green, albeit slightly yellowish.

Again, Lord Walden says that, except as regards the particulars as noted by him, his bird is like *saturata*, but this present species further differs from *saturata* in having the sides of the neck up to the ear-coverts deep maroon like the back.

I do not think it likely that Lord Walden's description can have erred in all these important particulars, and I have therefore, believing the species to be new, named it after him in acknowledgment of his valuable paper on the Sun birds of the Indian and Australian regions which appeared in the "Ibis" of 1870.

This new species was obtained by Mr. Davison along with *Æ. Dabrii*, Verr. and many other interesting species at Col. Tickell's celebrated, but hitherto little visited, collecting ground Mooleyit.

The following are the dimensions and an exact description of both sexes :—

Male.—Length, 5·5; expanse, 6·4; tail from vent, 2·8; wing, 2·08; tarsus, 0·55; bill from gape, 0·8; weight 0·25 oz.

Bill, black; legs and feet, dark brown.

Forehead, crown, occiput, nape, and extreme upper back, metallic blue, with a strong purple tinge; lores, orbital region, ear-coverts, chin, and extreme upper part of throat, dull black; entire sides of the neck as far up as the ear-coverts, back, except the extreme upper portion, and scapulars, maroon red; a conspicuous pale greenish yellow rump-band; upper tail-coverts and basal two-thirds of central tail-feathers, like the crown, but less purple; terminal third of central tail-feathers and lateral tail-feathers, dull blackish brown, the latter distinctly paler on the lower surface towards the tips; entire crop bounded on either side by black ear-coverts and maroon sides of the neck, metallic purple, with two narrow stripes of the same colour running upwards on either side to the gape, and thus bounding

the black of the chin and the extreme upper portion of the throat; the crop patch is bounded below by a velvety black line about 0·13 in breadth, below this the breast is pale greenish yellow, the feathers obscurely centred with orange red, this portion of the breast is bounded on either side by a continuation of the black band already noticed; the axillaries and wing lining are pure white or nearly so; the entire abdomen and the lower tail-coverts are olive green, yellower and paler on the sides; wings are dark hair brown, but most of the lesser and median secondary and tertiary coverts are tipped with maroon.

Female.—Length, 4·1; expanse, 5·7; tail from vent, 1·15; wing, 1·8, tarsus, 0·52; bill from gape, 0·8.

Legs and feet, reddish brown; upper mandible, black; lower mandible, very dark horny brown; irides, deep brown.

Forehead, crown, occiput, and nape, dull, rather pale, hair brown, the feathers excessively narrowly margined paler, giving a slightly squamose appearance to these parts; a dusky line through the lores from the nostrils to the eye; chin, throat, sides of neck, dull dusky grey, faintly tinged greenish; mantle, green, the dusky bases of the feathers showing through; rump-band, very pale yellow, almost white in the central portion; wings and tail, blackish brown, the feathers margined with olive green on the outer webs; the external lateral tail feathers, which are considerably shorter than the rest, tipped with greyish white and traces of similar tippings to the next or even 2 or 3 next feathers; breast, abdomen, and lower tail-coverts, dull greyish olive green; axillaries and lower wing-coverts, white.

Recently described Species.

Republications.

Picus manderinus, *Gould*, var. ap. *God.-Aust.*

This species has for its nearest ally in these districts *P. majoroides*, but the outer tail-feathers are white with narrow black bars, in contradistinction to *P. majoroides*, in which they are black with broad white ones.

Above it is the counterpart of *P. majoroides:* the back, wing, and tail rich velvety black; spots on the wing-feathers, moderate; a very large and conspicuous white wing patch formed by the secondary coverts; a scarlet band on the nape;

a white frontal band extends through the eye to the ear-coverts and side of the neck, the portion near base of bill and the ear-coverts being pale flaxen. Beneath the chin, white; throat and upper breast, earth-brown, with a pale scarlet gorget bordering a black patch, which, commencing at the gape, widens and extends down the side of the neck, a few pure white feathers separating this from the earth-brown of the throat; flanks, white; the tail has the two outer feathers white, barred with black on inner web, the outermost has two spots on the white outer web, and in the penultimate this web is entirely white; tips of the four outer tail-feathers ferruginous; the abdomen and under tail-coverts are crimson. Bill, dark plumbeous, rather stouter and blunter than that of *P. majoroides;* legs, equal in size.

Length, about 8 inches; wing, 5·0; tail, 3·68; tarsus, 0·85; bill at front, 1·17.

Hab.—Was obtained by Mr. Wm. Robert at Gonglong, Munipur Hills.

It differs from *P. manderinus*, Gould, in being smaller, in the white on the wings being more conspicuous, in being browner on the throat and breast, and in its whiter tail. In the specimen of *P. manderinus* in the British Museum with which I compared it, the outer web of the penultimate tail-feather has a black spot.—J. A. S. B., Vol. XLV., p. 194, 1876.

Alcippe fusca, *God.-Aust.*

Above head and nape, dull grey; back, olivaceous ochre, richer and more ochraceous on the rump. Tail, umber-brown, edged with the same colour as the back. Wing, rich ochrey brown; fulvescent ochre inside as well as on the flanks and thighs. Ear-coverts, dull brown; chin, sullied white. Bill and legs, horny. Irides?

Length, about 5·75 inches; wing, 2·85; tail, 2·7; tarsus, 0·87; bill at front, 0·47.

The above dimensions taken from skin.

Hab.—Four specimens were obtained by Mr. A. W. Chennell in the Nágá Hills.

Having remembered to have seen a very similar bird in the Jardin des Plantes, I forwarded a specimen to M. Oustalet, who very kindly examined it and gave me the following particulars:—It has a strong likeness to an *Alcippe* from Fokien named by M. A. David, *Alcippe Hueti;* the tint of the head, back, and abdomen are nearly the same, but there are differences worthy of notice. 1*st. A. Hueti* has the bill decidedly shorter than *A. fusca*. 11 millims, instead of 13, taking

the measurement along the culmen, and 14 instead of 18, from the gape; the tarsus having the same dimensions in the two birds. *2ndly*, the chin and the upper part of the breast are pure grey, and not pale fulvescent (*fauve clair*), as in *A. fusca*. 3rdly, the tint of the flanks is less fulvescent ochre, more mixed with green. 4thly, the internal webs of the tail-feathers are scarcely darker than the external, instead of being blackish as in *A. fusca*. Lastly, the wing is shorter, 0·65 mill. against 0·72 mill.

M. Oustalet is of opinion that the two are quite distinct though closely allied, *A. Hueti* being nearer to *A. nipalensis*. Another close form is *A. Morrisonia* from Formosa, which differs in being more rufous above, grey-cheeked, and smaller.—J. A. S. B., Vol. XLV., p. 197, 1876.

Niornis albiventris, *God.-Aust.*

Above dark rich umber-brown, paler on the shoulder of the wing; tail and wing, of same colour. Chin, sullied white, each feather, slightly tipped dusky; the throat, greyish white; upper breast, crossed by a band of pale rufous; lower breast and abdomen, white; flank, rufescent brown; under tail-coverts, rusty; pale rusty inside the wing. A palish circle round the eye. Bill, horny brown above, pale beneath. Irides?

Length, about 4·75 inches; wing, 2·1; tail, 2·2; tarsus, 0·87; bill at front, 0·45; hind toe and claws, 0·58; mid toe and claw, 0·80.

Hab.—Sengmai, Munipur Valley. Obtained by Mr. W. Robert.

It is very close to *Niornis assimilis*, Hodgson, but is larger and more strongly built, and of darker plumage throughout, for whereas the latter is of a greenish hue generally, the above form is rufescent. The tarsi and feet are particularly strong and the mid-toe, very long. The bill is identical, as regards the nostrils, but is rather deeper and stronger.—J. A. S. B., Vol. XLV., p. 199, 1876.

Abrornis chrysea, *Wald.*

Above bright oil-green, two broad dark stripes springing from the forehead, passing over the head and descending down the sides of the neck, where they are almost black. A central single stripe thus formed on the head, yellowish green. A broad stripe, springing near the nostril and passing over the eye, and thus bounding the dark stripe, bright yellow. Ear-coverts

mingled black and green. Cheeks, chin, throat, thigh-coverts, under tail-coverts, shoulder-edge, under shoulder-coverts, and axillaries, bright canary-yellow. Breast, paler yellow, shading to pale silky grey on the abdominal region and flanks. Quills, light brown, edged externally with bright greenish yellow. Major wing-coverts, tipped and edged with yellow. Rectrices, like the quills, all but the middle pair being edged on their interior margins with very pale yellow. Maxilla, brown; mandible, pale straw-colour. Wing, 2; tail, 2·75; tarsus, 0·56; bill from forehead, 0·50. Karen hills, ♀ (*W. R.*).

I am not sure whether this is not *Reguloides fulviventer*,* Godwin-Austen, a species founded on a carbolized example, in which the green and yellow may have become changed to grey, or altogether discharged.—J. A. S. B., 1875, Extra No. p. 106.

Zosterops Austeni, *Wald.*

Karennee, at 2,500 feet (*W. R.*).

Above, dark uniform oil-green; underneath, light yellowish-green; almost pure yellow on chin, throat, and under tail-coverts. A shade of black below the eye. Quills, dark brown, edged externally with the colour of the dorsal plumage. Shoulder-edge, bright yellow. Axillaries and under shoulder-coverts, white, tinged with yellow. Rectrices, hair brown, narrowly edged externally with green. Wing, 2·6; tail, 1·50; tarsus, 0·50; bill, from forehead, 0·55.—J. A. S. B., 1875, Extra No., p. 111.

Alcippe magnirostris,† *Wald.*

Karennee hills, at 3,000 feet (*W. R.*)

All the individuals obtained in the locality named differ from Darjeeling, Garo hills, and Naga hills examples, by wanting the grey-coloured cheeks and ear-coverts of *A. nipalensis*, and by having the tail brown and not rufous. All the dimensions are greater. Wing, 2·75; tail, 3; tarsus, 0·87.—J. A. S. B., 1875, Extra No., p. 115.

Stachyris assimilis, *Wald.*

Above cinereous olive-green. Feathers of the head, yellow, with brown central streaks. Cheek and ear-coverts, pale brown tinged with yellow. Entire under surface, dilute yellow. Quills, brown edged, externally with pale yellow. Rectrices, cinereous

* *Vide* S. F. III. p. 398.

† I feel assured that this is only the true *A. Phayrei* (*vide* infra p. 60).—Ed., S. F.

brown tinged with olive-green. Wing, 1·92; bill, from forehead, 0·56; tail, 1·92; tarsus, 0·58.

Karen nee (♂, ♀) at 2800 feet of elevation. Iris (♂), lake; bill, lavender, pink at base of mandible; legs, brownish yellow; feet, greenish. Iris (♀), brown; bill, dark plumbeous, pinkish at base of mandible; legs, light greenish-brown" (*W. R.*).—J. A. S. B., 1875, Extra No., p. 116.

Drymoeca Blanfordi, *Wald.**

Above, brown (darkest on the head): with an olive-green tinge, which is in some very distinct on the rump. A dull, broad albescent stripe springing from the base of the bill, and extending back over and beyond the eye. Ear-coverts mingled albescent and pale brown. Cheeks, wing lining, and all the lower surface of body, yellowish white, faintly rufescent on flanks and thigh-coverts. Quills, brown externally, narrowly edged with olive-green. In some with an indistinct rufous shade. Rectrices, pale brown above; albescent underneath; all but middle pair with a bold subterminal brown transverse isolated mark. Middle pair with a faint indication of a dark terminal spot. (♂) Wing, 2; tail, 2·50; tarsus, 0·82; bill from forehead, 0·58.

"Iris (♀), dark buff; maxilla, horny brown; mandible, pale; eyelids, yellowish brown; legs, dull white. Iris (♂), yellowish brown; bill fleshy brown; eyelids, yellowish brown; Tonghoo" (*W. R.*).—J. A. S. B., 1875, Extra No., p. 118.

Horeites sericea, *Wald.*†

Above, uniform, rather dark, brown washed with an olive tint, having in some lights a ruddy tone. Under surface of body and wing-lining, silky white, the flanks, thigh-covert, and under tail-coverts, sullied with pale brown. Cheeks and ear-coverts, mixed pale brown and white. Space before the eye and superciliary ridges, sordid white. Quills and rectrices brown, edged with the colour of the upper plumage. Wing, 2; tail, 1·75; tarsus, 0·68; bill, from forehead, 0·60.

"Iris (♀), dull brown; bill, yellow; legs, fleshy white. Karen hills" (*W. R.*).—J. A. S. B., 1875, Extra No., p. 119.

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* Should be compared with *D. fusca*, Hodgs.—Ed., S. F.

† This must be uncommonly close to *Horeites (Phylloscopus, apud Blanf. Err.) pallidipes*, Blanf, J. A. S. B. XLI, Part II, p. 162, pl. VII, 1872, which I have from Pahpoon, a little further south.—Ed., S. F.

Suya erythropleura, *Wald.*

Male, above rufous brown, the base of the feathers being ash On the lower back and upper tail-coverts, the rufous hue predo minates. Space before the eye, dark brown. A white line springing from near the nostril, passes back over and behind the eye. Ear-coverts, cheeks, chin, throat, breast, abdomen, and wing-lining, creamy white, strongly suffused with rufo-fulvous. Flanks, thigh-coverts, and under tail-coverts, bright ferruginous. Quills, brown edged, with ferruginous. Rectrices, like the back.

(♂) wing, 1·87 ; tail, 4·87 ; tarsus, 0·88; bill, from forehead, 0·65. Tonghoo (*W. R.*).—J. A. S. B., 1875, Extra. No. p. 120.

Garrulax nuchalis, *God.-Aust.*

Above, top of head to nape, dark slaty grey, succeeded by a broad rich ferruginous collar an inch in breadth, which fades into the olive-green of the back. Wings and tail of a rather darker tint of olive, the latter tipped black ; the first four primaries are edged hoary grey ; the shoulder of wing has a rusty tinge. A narrow frontal band ; the lores with a narrow line over and below the eye, black ; this is continued in a streak of dark rusty brown over the ear-coverts ; a few white feathers border the black frontal band above. Chin, black, extending a short way down the middle of throat ; breast, pale ashy, with a slight vinous tinge. Cheeks and ear-coverts pure white. Flanks and under tail-coverts dull olive green. Bill, black. Irides, purple lake. Legs, fleshy grey.

Length, 10 inches ; wing, 4·25 ; tail, 4·6 ; tarsus, 1·7 ; bill, at front, 0·9.

This beautiful species was among a batch of birds lately received from and collected by Mr. M. T. Ogle of the Topographical Survey, in the Lhota-Nágá hills. It is the representative there of *G. chinensis,* but differs in possessing the broad ferruginous nape, and the neutral grey of the head is of a darker hue. In other respects it is identical, save in some minor points, such as :—the black of the throat does not extend so far down on to the upper breast ; the lower breast is paler than in *chinensis,* and has a vinous tinge ; the under tail-coverts are pure olivaceous with no ochraceous tint ; and, lastly, the white of the cheek and ear-coverts extends in this new form further down the *side of the neck.—A. and M., Nat. Hist., November* 1876.

Suya khasiana, *God.-Aust.*

On a careful comparison, made by myself and Lord Walden of *Suya atrogularis* of the Darjeeling hills with specimens I had hitherto supposed to be exactly the same found on the Khási hills, the differences are so well marked that they are sufficient to separate them as a distinct race, to which I give the title *Suya khasiana*.

These differences are as follows:—

Suya atrogularis, Moore (of which eight specimens were examined),

a. Is a greyer bird, with a decided tinge of olivaceous;

b. None show pure white beneath;

c. Thigh-coverts, pale brown.

Suya khasiana, (fourteen examples compared),

a. Has a general tinge of ferruginous thoughout, which is particularly strong upon the forehead and wing;

b. Generally pure white on abdomen and centre of breast;

c. Thigh-covorts pure rufous;

d. The terminal white spots on the black feathers of the lower part of the neck are larger. *A. and M., Nat. Hist., November* 1876.

Notes.

I am strongly inclined to believe that *Drymocataphus fulvus*, Walden (A. and M. N. H., June 1875, p. 401; *S. F.*, Vol. III., p. 403) is identical with *Trichastoma minor*, Hume, Stray Feathers, October 1874, p. 535.

I have obtained numerous fresh specimens of my bird from the neighbourhood of Mooleyit, and I find with the series before me that some of the specimens answer extremely well to Lord Walden's description.

The dimensions are the same, *viz.*, wing, 2·5; tail, 2·1 to 2·3; tarsus, 1·0 to 1·05; bill, at front, *viz.*, from edge of feathers, 0·55, from forehead, 0·65, from gape, 0·75 to 0·8.

The plumage varies a good deal in different specimens. In some the middle of the throat or middle of abdomen, or sometimes both, are nearly pure white, while in some the whole lower surface is rufous buff, or more or less pale rusty fulvous.

When describing the species, I noticed that the tail was longer and more rounded than in *Abbotti*, and Lord Walden may be right (though without further comparison I am not prepared to assert that he is) in referring this species to *Drymocataphus*; but be this as it may, I think that there is little doubt that both names apply to the same species.

ALCIPPE *Magnirostris*, Wald., J. A. S. B., Extr. No. 1875, p. 115, (republished in the present No. of S. F., p. 56) is clearly, I think, *Alcippe Phayrei*, Blyth, J. A. S. B., Vol. XIV., p. 601, 1845. The measurements will be found to agree. The differences on which Lord Walden relies to distinguish his supposed new species from *nipalensis*, are, it will be seen, almost precisely those which I pointed out as distinguishing *A. Phayrei*.

Lord Walden was probably misled by Blyth's remark that "*Phayrei*, wanting the dark sincipital stripes, is probably the young" of *A. nipalensis*, but this was an assertion hazarded years afterwards, and without the specimens to compare. As a matter of fact, specimens from both the Arracan and Pegu Yomas and parts of Tenasserim are identical, and in many specimens, as I pointed out long ago, the sincipital stripes are almost obsolete and in an indifferent specimen might be absolutely untraceable.

Any one who will read Blyth's description and note his dimensions and also read what I have said and the dimensions that Mr. Oates has given (see *S. F.*, Vol. III., p. 116, 117) and then examine Lord Walden's descriptions of his supposed new species, will, I feel sure, concur that this is nothing but the true *Alcippe Phayrei* of Blyth.

DR. NEWMAN informs me, that the locality where he obtained *Pterocles senegallus*, referred to by Capt. Butler in his letter of April 4th, 1876 (Vol. IV., p. 508) is the well known Salt Source "Pokurun" and not "Tookeram," as stated.

Dr. Newman, also tells me that between Pokurun and the town of Jeysulmere, and throughout the country south of Jeysulmere for about 20 miles, he found the Spotted Sand Grouse very abundant. This tract of country is hard and stony, but intermingled with sand. In the southern portion of Mulanee (of which Balmeer is the capital) about the Looneo and Jesōl, he is pretty certain that they do not occur. The note of this species is, he remarks, very peculiar, it sounds like "*Quiddle, quiddle, quiddle,*" something like the gurgling note produced by blowing through a reed, one end of which is immersed in water.

AT PAGE 493 of Vol. IV., I quoted the best description I could find of *Anorrhinus Austeni*.

I find that Mr. Blyth states J. A. S. B. extra number 1875, p. 69, that this species is no other than the Malayan *Craniorrhinus corrugatus*; if so, the species will stand under Temminck's name with *galeritus*, God.-Aust. nec Tem, and *Austeni*, Jerd., as synonyms.

Letters to the Editor.

Sir,

I was rather amused to read the note at page 506 of Vol. IV. about the 'Bori' bird of Sind, and to find that Col. Haig has announced that I am 'wrong once more' in identifying it with *Euspiza melanocephala*.

Col. Haig's report on the Sehwan Taluka was written more than a year ago, but I had not been favoured with a copy, so I could not write sooner on the subject. I am glad to be able to assure you that Col. Haig is a better Settlement Officer than ornithologist.

I first wrote my own note on the subject in the month of April when the Black-headed Bunting had just come in, and I was eye-witness to the damage even small flocks were capable of committing. The people of the Sehwan District unanimously told me that *Euspiza melanocephala* was the culprit which had ruined their fields in the year 1869. The reason why the bird is not more generally known by Europeans in Sind is that District Officers in that province return from the Districts to their Head-quarters in March, as soon as the cold weather is over, and thus escape seeing the "Bori" at work.

Col. Haig seems not to have seen a Black-headed Bunting at all, and to have jumped at the conclusion that because *Pastor roseus* has a black head, that that was the bird I meant. Indeed, he talks of "the Black-headed Bunting vulgarly called the "Juari Bird," which last epithet is in the Bombay Presidency entirely confined to *Pastor roseus*. A Settlement Officer need not necessarily know the difference between a Bunting and a Starling, but it might have occurred to him that it was possible that two different birds might have dark heads, go in flocks and devour grain. I have not seen Col. Dunsterville's paper on the subject, but as far as my memory serves me, I think he is right in saying that the Sind name of *Pastor roseus* (which is very common there in the cold weather) is "Waheeo." As for *Ploceus manyar*, you, Mr. Editor, know what large flocks of that species are to be found in Sind, and Jerdon* mentions that it is often found feeding in flocks with *Euspiza melanocephala*. It is quite possible therefore that Col. Dunsterville has seen both birds in company, and that on the natives telling him in their vague way that 'those are the "Boris" he attached the epithet to *Ploceus* which

* Jerdon refers to *Ploceus baya*, which is represented in Sind by *Ploceus manyar*.

he knew well, rather than to *Euspiza* which he did not know so well; or it may be that the natives, not good ornithologists themselves, attach the name of 'Bori' to any bird which feeds on grain fields in flocks and which is difficult to scare, the word 'Bori' being simply the Sindi for 'deaf.' All I can testify is, that I made particular enquiries on the spot, and native opinion was unanimous in saying that it was *Euspiza* and not *Ploceus* which destroyed the crops in 1869. However, there is a competent ornithologist in Sind now, Captain Butler of the 83rd, and I have no doubt before a few months are over the question of identification will be satisfactorily settled. I must say that I do not think he will find it 'a rare bird from a distant part of Central Asia,' and that Col. Haig will find reason another time to refrain from theorizing upon ornithological matters. I may mention that recently in Kattywar I met with *Euspiza melanocephala* about 50 miles from the east coast, on the 29th January. The birds I saw were doubtless the pioneers of the flocks on their way from the Deccan to Sind.

I will only add, for the information of your readers, that Col. Haig's "wrong once more" refers to an assertion, he credits me with having made at first, that the 'Bori bird' was a sparrow. But he misquotes me. In my original report I restricted my accusations to "birds" as I had not then identified the species. Col. Haig has attributed to me a *quotation* given by me from a report by a Revenue Officer (a native who does not know English and whose Clerk translated his report for him) that 'sparrows' had done the damage. But, for my own part, I intentionally refrained from acknowledging that identification.

H. E. M. James.

Bombay, 20*th February* 1877.

Sir,

As Dr. Bowdler Sharpe expresses his wish for notices of the minivets (*Stray Feathers* for '76, p. 205), I send the following particulars of one shot at Comilla, Tipera, in February 1876. I identified it as *P. speciosus*, Jerdon, 271, but it differed slightly from his description :—

Length	9½	inches.	Wing	4	inches.
Tail	4	„	Tarsus	$\frac{7}{10}$	„
Bill	$\frac{1}{2}$	„			

The red color was more fiery than vermilon: the wings had less red than his description gives. The tail was *entirely* red, the shafts of the tail feathers above were blackish for the basal two-thirds, but no trace of black otherwise on any of the

tail feathers. The Bengali name at Comilla is *Suna-pakhi*, i. e., Golden bird.

With reference to the breeding of the Shell-ibis, Jerdon, No. 940, noticed at p. 212, I have found them in great numbers with nestlings, in October, round the Chilka lake in Orissa. One great breeding place is on a rocky islet covered with jungle at Noiri on the west side of the lake. The name they go by there is *Gendalia*.

A. MANSON.

Too late for full description. I have to note an apparently new *Turdulus*, like *Wardii* and *cardis*, but entirely black everywhere, except only a broad satiny white supercilium. If really new, *T. Davisoni* nobis. In a collection made by Mr. Davison on the slopes of Mooleyit, Tenasserim.

A. O. H.

STRAY FEATHERS.

Vol. V.] **JUNE 1877.** **[No. 2.**

Note on Buteo desertorum and Buteo plumipes.

By J. H. Gurney, Esq.

Having been much interested in the Editorial remarks on the Indian Buzzards, contained in the December No. of Stray Feathers for 1876, p. 358, I beg to offer, as in some degree supplementary to them, the following comparative measurements of *Buteo desertorum* and *Buteo plumipes*, to which I have added a few remarks as to the coloration of both these species; the undermentioned specimens are all in the Norwich museum, except where the contrary is specified, and the measurements, with the exception of four quoted from Dresser's Birds of Europe, have been all taken by myself, the wing* being measured from the carpal joint to the tip of the longest primary, along the external surface of the wing, and with a flexible measure so as to allow for the slight convexity of the surface, the tarsus to the origin of the toes, and the bare space in front of the tarsus to the same point from the tip of the tarsal feathers :—

Ascertained and presumed males of *Buteo desertorum*.

	Wing.	Tarsus.	Bare Front of Tarsus.
♂ South Africa... ...	13·9	2·5	1·4
Presumed ♂ do.	13·75	2 6	1·45
♂ Mogadore	14·5	2·55	1·5
♂ (so marked by the late M. Favier) Tangiers ...	15·2†	2·7	1·6
♂ Ditto ditto ...	15·4†	2 8	1·6
♂ Tangiers quoted from Dresser	14·5	2 7	.....
Presumed ♂ Algeria ...	14·8	2·8	1·8

* My measurements are not *round* the edge of the wing, but *straight* from the carpal joint to the tip of the longest primary, measured on the inner surface of the wing, this latter being pressed flat on a table. About half an inch (more or less, for it varies I find in different specimens) must be deducted from Mr. Gurney's measurements to make them comparable with mine.—A. O. H.

† Must I should say be really females.—A. O. H.

	Wing.	Tarsus.	Bare Front of Tarsus.
Presumed ♂ Egypt ...	14·3	2·8	1·45
Ditto ♂ in collection of J. H. Gurney, Junior ...	13·8	2·8	1·5
♂ Spain quoted from Dresser	14·	2·8	.....
Presumed ♂ Constantinople...	14·7	2·10	1·5
Ditto ♂ Archangel ...	13·7	2·8	1·5
Ditto ♂ ditto quoted from Dresser ...	13·5	2·6	.....
Ditto ♂ said to be from Persia, but more probably from Erzeroum ...	14·2	2·8	1·7

Ascertained and presumed females of *Buteo desertorum*.

	Wing.	Tarsus.	Bare Front of Tarsus.
♀ South Africa quoted from Dresser	15·	2·8	.....
♀ (so marked by the late Sir A. Smith) South Africa ...	14·5	2·8	1·1
♀ (so marked by the late C. J. Anderson) Knysna, South Africa	14·3	2·7	1·3
♀ Transvaal	15·2	2·8	1·8
♀ Believed to be from Mogadore	15·85	2·6	1·5
♀ Tangiers	15·7	3·	1·7
♀ ditto	15·8	2·9	1·7
Presumed ♀ Algeria ...	15·8	3·1	1·8
Ditto ♀ the Volga (two specimens)	15·	2·8	1·7
Ditto ♀ Syria ...	15·	2·9	1·5

Ascertained and presumed males of *Buteo plumipes*.

	Wing.	Tarsus.	Bare Front of Tarsus.
♂ (so marked by Mr. Swinhoe) Amoy, China ...	15·2	2·7	1·45
Presumed ♂ ditto ...	15·45	2·8	1·25
Ditto ♂ ditto ...	15·	2·7	1·4
Ditto ♂ ditto ...	15·6	2·9	1·35
Ditto ♂ China ...	15·	2·6	1·35
♂ (so marked by the collector) Cashmere	15·6	2·9	1·1
♂ Cashmere	14·1*	2·9	1·

* If the primaries of this specimen are fully developed, I confess that I should find it difficult to accept it as *plumipes*.—A. O. H.

Ascertained and presumed females of *Buteo plumipes*.

	Wing.	Tarsus.	Bare Front of Tarsus.
♀ (so marked by the late M. Jules Verreaux) Japan ...	15·3	2·6	0·9
♀ (so marked by Mr. Swinhoe) Amoy, China ...	15·2	2·7	1·3
Presumed ♀ ditto ...	15·65	2·6	1·2
Ditto ♀ Himalayas ...	16·8	2·9	1·4
Ditto ♀ ditto ...	16·7	3·	1·2
Ditto ♀ Ceylon, in the collection of the Marquis of Tweeddale ...	16·6	3·2	1·7

None of these specimens of *Buteo plumipes* are in the fuliginous plumage, but one of the Himalayan examples appears to be passing into it from the rufous phase; it will be observed that the three last specimens on the above list are unusually large examples of *Buteo plumipes*, but after careful examination, I am of the opinion that they must be referred to that species.

It may be useful to refer briefly to the figures which have been published of *Buteo desertorum* and of *Buteo plumipes*; these are, as regards *Buteo desertorum*, first "LeRougri" of Le Vaillant, pl. 17, and the "*Falco cirtensis*" of L'exploration de l'Algerie, pl. 3, both which represent unfaded adults of *Buteo desertorum* in the pale-chested phase which not unfrequently occurs, but in LeVaillant's plate and description the color of the bill is incorrectly given; secondly, "*Falco tachardus*" of the first and *Buteo desertorum* of the second edition of Bree's Birds of Europe; this figure, which is the same in both editions, also represents an unfaded adult, but in the rufous-breasted phase which is somewhat more frequent than the pale breasted; lastly the two figures in Dresser's Birds of Europe, one of which represents a male, which Mr. Dresser describes as adult, but which judging from the figure, I think has scarcely attained its fully adult dress, and has, moreover, a considerable portion of its plumage somewhat faded by exposure to the sun and weather; the other figure in Mr. Dresser's plate represents an immature specimen in which the dark transverse bars on the lower flanks and on the tail are exceptionally distinct and conspicuous.

Of *Buteo plumipes* "I am acquainted with but four figures; *viz.*, those in the Faunæ Japonica," which represent the only two phases of plumage in this buzzard which I have seen from Japan and China: Jerdon's figure of his "*Buteo rufiventer*," which resembles in the character of its markings

the specimen represented at pl. 6 of the Fauna Japonica, but is somewhat darker in its general coloration, and lastly, the fuliginous type specimen represented in figure 1 of plate 7 in the first volume of Sharpe's "Catalogue of the Birds in the British Museum."

As far as I have observed, no stage of plumage corresponding with this fuliginous phase, nor any that is identical with the very pale plumage figured at plate 6 B of the Fauna Japonica, is ever assumed by *Buteo desertorum*; pale specimens of this latter buzzard there undoubtedly are, but these are birds in faded plumage and even in this state they generally retain a slight tinge of rufous and never entirely resemble the pale phase of *Buteo plumipes*, which is so frequently to be observed in specimens of that buzzard obtained in China; on the other hand, I have never seen a specimen of *B. plumipes* so brightly rufous on the upper surface and specially on the tail, or with so much white on the breast, as is correctly portrayed in the figure of *Buteo desertorum* given in "L' Exploration de l' Algerie."

One phase of plumage, which is of frequent occurrence in *Buteo plumipes*, and which is represented in Jerdon's figure and also in plate 6 of the Fauna Japonica, is chiefly distinguished by the upper breast being covered by a cross-patch or plastron of dull rufous brown differing in intensity in different individuals, but only variegated with slender shaft-marks, and also by the lower breast and abdomen being transversely banded with alternate brown and white bars; I have once, and once only, seen a similar phase of plumage in *B. desertorum*, the specimen exhibiting it being one from the Volga in the Norwich museum.

The second male of *B. plumipes* from Cashmere in the above list, more closely resembles *B. desertorum* than any other example that I have examined, not only in its small size, but also in its plumage; it has the appearance of a young bird; and having been killed on 9th July, was probably hatched during the preceding spring; it is one of the most rufous specimens of *B. plumipes* which I have seen, and so nearly resembles in coloration an immature *B. desertorum* from Tangiers, which is also in the Norwich museum, that there is hardly any marked difference in plumage between the two birds; the dark transverse bars on the posterior primaries are, however, more strongly marked in the Cashmere than in the Tangiers bird, and I observe that this is ordinarily the case in *B. plumipes* as compared with *B. desertorum*; the tarsi are also feathered lower by more than half an inch in the Cashmere specimen than in the buzzard from Tangiers, and taking these two

peculiarities into account, I think I am correct in considering this Cashmere example to be a small specimen of *B. plumipes*.

Such close coincidences of plumage between examples of *B. desertorum* and *B. plumipes* are by no means common, and most specimens of both species, even when not characterised by any extremes of coloration, may be distinguished not only by the comparative measurements of birds of the same sex, but when this criterion proves insufficient, as is sometimes the case, by a different character of coloration and marking which, though not easy to define by description, is, in most cases, sufficiently perceptible when an adequate series of specimens is available for comparison.

[It will be observed that Mr. Gurney accepts generally my contention that *B. rufiventer*, Jerd. = *B. plumipes*, nec, *B. desertorum*; that the wings of the largest female, *desertorum*, measured as I measure them, do not exceed from 15·2 to 15·3; that *desertorum* so far as we yet know does not really occur in India, though one specimen from Cashmere, might perhaps be assigned to that species.—A. O. H.]

Sunbirds.

Having forwarded to Captain G. E. Shelley, who is now issuing a splendid monograph of the Sunbirds, the type specimen of a supposed new species of Sunbird, which I named and described (S. F., Vol. III., p. 320) as *Anthreptes xanthochlora*, he informs me that it is certainly, despite the great difference in size, the female of *A. simplex*.

He furnishes me at the same time with a sketch of the classification he proposes to adopt, subject, of course, to such alterations as the progress of his investigations may show to be necessary.

As he authorizes me to make any use I like of this sketch, and as portions of it cannot fail to be useful to Indian ornithologists, I do not hesitate to reproduce these here.

He divides the family as follows:—

Sub-family I.—Neodrepaninæ (Madagascar.)
" II.—Nectariniinæ.
" III.—Promeropinæ (Africa.)

He divides the 2nd sub-family into 11 genera, three belonging to the Nectarinia group (*Nectarinia, Hedydipna, Anthrobaphes*, which are all African; three belonging to the Æthopyga group,

viz., *Æthopyga*, *Urodrepanis*, and *Eudrepanis*; (these two latter are represented by three species, *U. Christinæ*, Hainan, *E. pulcherrima*, Philippines, *E. Duivenbodei*, Sanghir;) two belonging to the CINNYRIS group, *Calcostetha* including a single species (*insignis*), and *Cinnyris* containing 71; *Anthreptes*, containing *hypogramma*, *singalensis*, *malaccensis*, *simplex* and nine others, and the ARACHNOTHERA group, containing *Arachnothera*, 6 species, and *Arachnoraphis*, 3 or 4* species.

His large genus *Cinnyris*, which, I fear, will prove rather unwieldy, he divides into 9 sub-groups or sub-genera; *Hermotimia*, including 14 species from the Archipelago; *Nectarophila* (3 Indian and one Philippine species); orange-banded group (one Philippine species, *Æthopyga flagrans*, Oustalet); *Cyrtostomus* or olive-backed Asiatic group; *Cinnyris* or dark-metallic group, containing two Indian species, *C. lotennius* and *C. asiaticus*, one Palestine, (*C. osea*) and 14 African. The four other groups containing 27 species, all African.

In the third of these groups we are specially interested, and the following is Capt. Shelley's key to the 8 species that he at present includes therein:—

Olive-backed Asiatic group; *Cyrtostomus*, Cab. In the males, upper parts olive; metallic parts confined to the throat, or to the throat and crown. Breast yellow, orange red, or black.
(A.—BREAST YELLOW).

I.—Pectoral tufts uniform in colour with the breast; non-metallic pectoral band absent or very indistinct; no metallic forehead.
  (*a*) *With a loral streak and yellow eyebrow.* — *frenatus*, Müll.
  (*b*) *No loral streak nor yellow eyebrow.* — *jugularis*, Lin.

II.—Pectoral tufts darker than the breast.
  (*a*) *Non-metallic pectoral band very distinct.*
    1. No metallic forehead.
      α Bill shorter and weaker; breast darker; pectoral tufts chrome yellow and orange; sides of metallic throat blue — *flammaxillaris*, Blyth.

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* 1. *Arachnoraphis flavicentris*; 2. *Arachnoraphis robusta=armata*, *and europygialis*; 3. *Arachnoraphis Temminckii*;—*A. crassirostris and A. vagans* Capt. Shelley cannot yet determine. He omits *Anthodiæta* as apparently not separable from *Anthreptes*.

β Bill longer and stronger; breast paler; pectoral tufts gamboge yellow; sides of metallic throat green	*andamanicus*, Hume.
2. Forehead metallic	*rhizophoræ*, Swinh.
(*b*) *Non-metallic pectoral band absent or very indistinct. Forehead metallic*	*pectoralis*, Horsf.
(B.—BREAST ORANGE RED, OR BLACK.)	
I.—Pectoral tufts paler than the breast.	
(*a*) *Breast orange red*	*solaris*, Temm.
(*b*) *Breast black*	*zenobius*, Less.

Captain Shelley also gives a key to another genus in which we are much interested, *viz.*, *Æthopyga*. I am not quite sure that I have in all respects correctly interpreted his views, and, if there should prove to be any error in the subjoined table, *I* must take the blame; with all that is correct *he* may be justly credited.

*Key to the genus Æthopyga.**

A.—NAPE AND BACK OF NECK NOT METALLIC.	
I.—Chin and throat not metallic.	
(*a*) *No metallic moustachal streak.*	1 *eximia*, Horsf. Java.
(*b*) *With a metallic moustachal streak*	

Æthopyga Duivenbodei has the tail square and the wing-coverts metallic; it belongs to the genus *Eudrepanis*, it inhabits the Sanghir Islands. *Æ. chalcopogon* from Borneo can only be *siparaja*. *Æ. lodoisiæ*, Salvad, is *mysticalis*. *Æ. Beccarii*, Salvad, is ♂ juv. of *flavostriata*. *Æ. Waldeni* (*ante* p. 51), it appears agrees in every feather and measurement with the type of *Æ. sanguinipectus* with which Capt. Shelley has carefully compared it. Capt. Shelley kindly sends me a correct description of the type, which I subjoin; it will be seen how materially this differs from the original description, re-published, S. F., III., p. 402.

"Description of type of *Æthopyga sanguinipectus* :—

"♂ ad. above: forehead, crown and back of the neck violet shaded steel blue; sides of the head black; upper back, sides of the neck and greater portion of the scapulars very dark red; lower back, crossed by a narrow pale yellow band; lowest portion of the rump, upper tail-coverts, and two centre tail-feathers (with the exception of the ends of the latter), steel-blue, very faintly shaded with violet; remainder of the tail, black; the feathers partially edged with steel-blue; wing-coverts and ends of the scapulars, black; quills, dark brown, faintly edged with olive. Beneath chin, throat and crop, black, with the sides of the chin and the throat violet, shaded steel-blue; front half of the chest, pale yellow, distinctly mottled with scarlet; remainder of the breast, abdomen and under tail-coverts, pale yellowish olive; under surface of the wings dark brown, with the inner margin of the quills and the coverts white.

"a ♂ type Keren Nee 14-3-74, (Wardlaw Ramsay) Walden Mus, Length	5·20	C. 0·65	W. 2·15	Tl. 2·80	Ts. 0·5.	
"b type Tonghoo hills 0-4-74 ditto ditto	5·70	0·70	2.20	3.2	0.607.	
"c ♂ Keren Nee 12-3-74.						
"p ♂ type of *Waldeni* by my measurement	5·50	0·70	2·15	2·75	0·57."	

1. Throat and breast yellow — 2 *Shelleyi*, Sharpe, Philippines.

2. Throat and front of chest, red

α Tail not red; portion metallic.

* Crown, upper tail-coverts and metallic portion of tail, green.

** A metallic patch on ear-coverts — 3 *Vigorsii*, Sykes.

** No metallic patch on ear-coverts — 4 *miles*, Hodgs.

* Crown and upper tail-coverts, green; metallic portion of tail, blue. — 5 *cara*, Hume.

* Metallic portion of crown and of tail blue

** No red eyebrow, nor red feathers on forehead.

† Chin and throat without or with very slight yellow streaks.

†† Abdomen and under tail-coverts, ashy brown tinted with olive.

Bill shorter and weaker — 6 *siparaja*, Raffl.

Bill longer and stronger — 7 *nicobarica*, Hume.

†† Abdomen and under tail-coverts black. — 8 *magnifica*, Sharpe. Philippines.

† Chin and throat strongly streaked with yellow — 9 *flavostriata* Wall. Celebes.

** A red eyebrow and few red feathers on forehead. — 10 *mysticalis*, S. Müll. Java.

β Tail scarlet with no metallic portion. Crown scarlet with a horse shoe shaped metallic patch encircling the forehead. — 11 *Temmincki*, S. Müll. Sumatra.

II.—Chin, throat, and crown, metallic blue.

(*a*) *Upper tail-coverts and tail, scarlet.* — 12 *ignicauda*, Hodgs.

(*b*) *Upper tail-coverts and portion of tail metallic blue.*

1. Front of breast scarlet — 13 *Dabryi*, Verr. China and
2. Front of breast yellow — 14 *Gouldiæ*, Vig. North-East Burmah.

B.—NAPE, CROWN AND BACK OF NECK METALLIC.

I.—Upper half of head, back of neck, and throat metallic green.

(*a*) *Upper back red.*	15 *nipalensis*,	Hodgs.	
(*b*) *Upper back green.*	16 *Horsfieldi*,	Bly.	
II.—Upper half of head, back of neck, and sides of the throat steel-blue.			
(*a*) *Front, of breast black.*	17 *saturata*,	Hodgs.	
(*b*) *Front of breast yellow, mottled with scarlet.*	18 *sanguinipectus*	Wald.	Northern and Central Tenasserim Hills.

Some of my Indian readers may be both able and willing to furnish Captain Shelley with additional information in regard of the distribution, habits, notes, food, nidification, &c., of some of the many species of Sunbirds that occur within our limits; it so, their communications should be addressed to 32, Chesham Place, London.

Our Indian Certhiinae.

In 1873, Mr. Brooks published (J. A. S. B., XLII., p. 255 *et seq.*) a monograph of the Indian species of the genus *Certhia*.

This paper is so excellent in many respects that I shall reproduce here great portions of it, but inasmuch as I differ greatly from Mr. Brooks as to the names that some of the species should bear, I shall add a few remarks in regard to this point and indeed some other minor ones.

Mr. Brooks was the first to point out that in India we have at least five good species of *Certhias* in which view I entirely concur.

These are—

1.—Certhia himalayana, *Vig.*, which calls for no comments.

2.—Certhia Hodgsoni, *Brooks.**

Mr. Brooks says :—

"I regard the *four* outer plain or unspotted primaries of *C. Hodgsoni*, *versus* the *three* plain ones of the English bird, as conclusive evidence of the distinctness of the two species. The much longer and straighter bill with the white lower mandible, and the grayer and less rufous tone of plumage with much whiter spotting on the back and head, should also be taken into account. The legs and feet of the English bird are also, as a rule, darker. The voices of the two birds differ;

* For original description, see S. F. III., 233 n.—Ed.

that of the English one being much louder and somewhat different in tone. The Indian species is much more silent. I have before noticed the conspicuous difference in the eggs.

"This species is the *C. familiaris* of some Indian ornithologists."

Now as to the eggs and voice, I can say nothing. I have not an accurate ear for fine distinctions of sound as Mr. Brooks' unquestionably has, and I have seen only six eggs of the European and three of the Cashmere bird, and though these bore out Mr. Brooks' contention, the number is far too small, in the case of eggs, to enable any one safely to hazard an opinion.

But as regards the primaries, I have examined 13 English and European specimens of *familiaris* and six *Cashmere* specimens of *Hodgsoni*, and in all these Mr. Brooks' diagnosis held thoroughly good.

From Europe Mr. Brooks writes to me that he has examined a very large series of *familiaris*, and that in all these also his diagnosis held good.

As to the other points dwelt upon by Mr. Brooks, I attach less value to these, as though his distinctions seemed to me *generally* correct. I came across specimens of *familiaris*, which led me to doubt whether they could *always* be implicitly relied on to diagnose the species, irrespective of the markings on the primaries.

Now it must be admitted, that the one difference, on which Mr. Brooks relies, and which appears to me to be truly constant, is a very small one; but accepting the axiom usually admitted by ornithologists, that any difference, however small, is, if constant, of specific value, I do not see how we can reject *C. Hodgsoni*, more especially when it is usually, if not invariably, characterized by other marked differences in size and coloration, and when no true *familiaris* has as yet been obtained in Cashmere, nor, so far as I have yet been able to learn, any *Hodgsoni* in Europe.

Mr. Brooks continues:—

"3.—Certhia nipalensis, *Hodgs.*

Certhia discolor, *Bly.*

"Any one who has examined Mr. Hodgson's drawing of *C. nipalensis* must have seen at a glance that it represents the earthy brown breasted bird; and I have therefore no hesitation in uniting both species under Hodgson's term.

"The supposition that the brown-breasted bird could be identical with either of the two species next to be described

is a great mistake, as a good series at once shews. As far as my own observation goes, the sexes of the *Certhiinæ* are alike in plumage. Even the young and old are very similar. The earth brown tint of *C. nipalensis* commences from the base of the lower mandible; and the chin and throat, which are generally protected from getting soiled in most birds, are in this species as dark as any part of the breast. The idea that the brown lower surface is merely produced by the feathers being soiled, is against the rule with regard to Creepers, which preserve the purity of their plumage in a remarkable manner even near large manufacturing towns.* The colour on the breast of *C. nipalensis* is, as Mr. Blyth remarked, a fast colour.

"The tail of this species is more rufous than in that of any of the others; in other respects the coloration of the upper parts is similar to that of the two species next to be described. *C. nipalensis* † has a large and rather strong bill compared with those of the others."

Now in all this I agree, *except* as regards the nomenclature.

I concede at once that Mr. Hodgson's drawing (original series,) No. 289 (pencil) 598 (red ink), labelled "*Certhia himalayana*" and below "*Certhia nipalensis, Nob,* 1825," and also "*Certhia familiaris.* Common Creeper, Nipalese variety," represents the brown-breasted bird. This is clear and unmistakable, but this drawing was *never* published, and does not in any way affect the question.

As far as I have been able to discover, Mr. Hodgson never himself published the name *nipalensis* with any description.

Very early he seems to have come to the conclusion that *nipalensis* was only a variety of *familiaris,* and later he identified it with *himalayana,* and under this name it appears in his own printed Catalogue of Nepalese birds, dated (in MSS.) Darjeeling, May 1846.

I do not think Mr. Hodgson ever published any description of *nipalensis,* first because I can find none, nor any reference to any such publication in any of his notes; and secondly because Mr. G. R. Gray, as late as 1849, (Gen. B. Appx., p. 7, No. 143) only quotes *nipalensis,* Hodgs., on Blyth's authority, and so too Moore and Horsfield (very accurate, as a rule, for the time at which they wrote, in their synonymy), as late as 1858 (Cat. Mus. H. E. I. C., 718, No. 1044) only refer for the authority of the name to those passages in the J. A. S. B., and Ann. N. H, in which Blyth gives the species as *nipalensis* of Hodgson.

* I remember well an instance of this in a Creeper that used to build annually against the wall of Mr. W. Brackenridge's House at Enfield in a Virginian Creeper and which was as purely coloured as a real rustic.—Ed.

† *i. e.*, discolor.—Ed.

If Mr. Hodgson had ever published a description of *nipalensis*, surely either Gray, or Moore and Horsefield, or Blyth himself would have known of and indicated it.

The facts appear to be these:—In 1843 Mr. Hodgson sent three examples of the white-breasted species to the As. Soc. Mus. labelled *Certhia himalayana* and also *Certhia nipalensis*, Hodgson. *Himalayana* was not known then, and Mr. Blyth accepted the specimens as belonging to this species.

Two years later, Mr. Webb sent specimens of the brown-breasted species from Darjeeling, and Blyth at once detected the difference between these and the white-breasted birds previously received from Hodgson.

Accordingly in his list * of the Indian Nuthatches and Tree Creepers (J. A. S. B., XIV., p. 579, 1845) we find (page 580) the following:—

"7.—*Certhia himalayana*, Vigors. P.Z.S., 1831, p. 174.

8.—*Certhia discolor*, Nobis.—Distinguished by having the entire under parts uniform dingy brown, or very much sullied albescent (inclining in some to whitish on the abdominal region), and no ferruginous on the flanks, but only on the lower tail-coverts; whereas in the preceding species, the under parts are pure white, tinged with ferruginous on the sides of the breast, and the flanks as well as the lower tail-coverts are deep ferruginous; the upper parts also are a shade less rufous than in *C. himalayana* and the pale central spots to the feathers are more diffused (*i. e.*, much less defined), especially those of the head. Upon a first view it might be thought that the under parts of *C. discolor*, are merely dirty; but the color is not to be washed out, and five specimens before me are all quite similar, while in three Nepal specimens of the other the white is alike pure and the flanks deep ferruginous. *It is indeed possible that neither of these is the true* C. himalayana, *in which case the Nepal species might be designated,* C. nipalensis, *Hodgson.*"

The italicised passage (the italics are mine) is, I believe, the first published indication of *C. nipalensis*, and by this the name must stand, and not by any name recorded on an unpublished drawing.

I may add that in 1847 Mr. Blyth received the true *himalayana*. He remarks (J. A. S. B., XVI., 864) "a few bird skins, among which is one species new to the museum, *viz.*, *Certhia himalayana*, Vigors, *v. asiatica*, Swainson; 'common in the Dehra Dhoon.' This is quite distinct from *C. nipalensis*, Hodgs.,

* ? Is this what Blyth refers to (Cat. Mus., As. Soc. Birds, p. 188, No. 1131.) as his "Mon. Ind. Certhiadæ ?" Or is it his communication to the Ann. Nat. Hist. (XX., p. 317., November 1847) ? Or did he ever publish any separate Monograph ? I can find no trace of it.

and my *C. discolor* inhabiting Sikhim, making three Himalayan species of typical *Certhia*."

Following Blyth, Mr. Gould figured and described the white-breasted species (July 1850) as *nipalensis*, giving the brown-breasted one as probably or possibly a mere variety, while again, in 1862, Jerdon (B. of I., I., p. 38) described the white-breasted species as *nipalensis*.

Never, so far as I can ascertain, has the name *nipalensis* been connected in any *published* utterance with the brown-breasted species (except where this latter was treated as a mere variety of the other) until Mr. Brooks so connected it in the passage above quoted, and if this be so, it is needless to say that this third species of Mr. Brooks must stand as *Certhia discolor*, Blyth.

Mr. Brooks continues :—

4.—Certhia Stoliczkæ, *N. S.*

"This species, as far as as the upper surface is concerned, resembles *C. nipalensis**; but the bill is much shorter and weaker, the chin and throat are fulvous, and the breast warm buff, increasing in rufous tone to the flanks and lower tail-coverts, which are bright rusty brown; the rump and upper tail-coverts, as in *C. nipalensis*†, are bright rusty brown, even brighter perhaps than in that species; but the colour of the tail feathers is less rufous, particularly so as regards the shafts of the feathers. The long claws, especially those of the anterior toes, and the large foot, are noticeable in this new species; in fact it could almost be separated by the foot alone. Sometimes its throat alone is nearly white, but from this point the fulvous tone covers the lower surface."

I agree generally in the above, the species is unquestionably a good one, but I would not lay so much stress on the size of the foot, which, though exceeding that of the true *nipalensis* (*Mandellii* apud Brooks), differs but little from that of the true *discolor* (*nipalensis*, apud Brooks).

Mr. Brooks continues :—

"5.—Certhia Mandelli, *N. S.*

"[*Note.*—This is probably the *Certhia nipalensis* of Jerdon's Birds of India.]

"A bird of similar dimensions to the last, but with longer and more curved bill and smaller feet and claws."

"The throat and breast are bright silky white; abdomen and sides tinged with brown, and flanks washed with rusty; lower

* *i. e. discolor* vera.—Ed., S. F.
† *i. e. C. discolor*.—Ed., S. F.

tail-coverts pale rusty brown; upper tail-coverts as in the last bright rusty brown; tail plain brown with the shafts rather rufous. In the colour of the tail being plain brown, this bird differs much from the last. Its principle characteristic is however the pure white breast instead of the buff one of the last species; the upper surface of the bird is very similar."

As I have shown, when treating of the 3rd species, this bird must stand as *nipalensis*, Hodgs.—

The synonymy therefore of the group will, I think, stand somewhat as follows:—

1.—Certhia himalayana, *Vigors.*

Pro. Comm. Sci. and Corr. Zool. Soc. I., 174, 1831.—*Gould.* B. of As. Pt. II, Pl. 17.—Jerd. B. of I. I., 380.

vittacauda, *Jam.* Mem. Wern. N. H. S. VII., 490; *vide Jerd.* Ibis 1872, 19.

asiatica, *Swains.* 2¼cent. Birds?; Anim. in Manag. 353.

2.—Certhia Hodgsoni, *Brooks.*

J. A. S. B. XLI., 74. 1872.—S. F. III., 233 *n.*

familiaris, *Jerd.*, Ibis, 1872, 19, et auct. nec. *Lin.*

3.—Certhia discolor, *Blyth.*

J. A. S. B. XIV., 580, 1845; XVI., 864, 1847; Ann. Nat. Hist. XX., 317. 1847.—*Jerd,* B. of I., I., 381, 1862.

nipalensis, *Hodgs.* var. ? Apud *Gould,* B. of As., Pt. II., Pl. 16, (*lower figure*) July 1850.

nipalensis, *Hodgs.*, vera. Apud *Brooks,* J. A. S. B. XLII, 255.

4.—Certhia Stoliczkæ, *Brooks.*

J. A. S. B., XLII., 256, 1873.

5.—Certhia nipalensis, *Hodgs.*

Vide *Blyth,* J. A. S. B. XIV., 581, 1845; XVI., 864, 1847; Ann. Nat. Hist. XX., 317, Nov. 1847.—Gould, B. of As., Pt. II., Pl. 16, (*upper figure*) July 1850.—Jerd. B. of I., I., 381, 1862.

Mandelii, *Brooks,* J. A. S. B. XLII., 256, 1873.

The diagnosis of these species is as follows.

Tail strongly barred	...	...	*himalayana.*
Tail faintly or obsoletely barred		...	*Hodgsoni.*

Tail plain, unbarred.	Throat and breast, earthy olive brown, (Bill from *forehead* about 0.75, rather stouter and straighter)	*discolor.*
	Throat and breast, strongly tinged with a warm buff. (Bill from *forehead* about 0·63, much shorter and straighter)	*Stoliczkæ.*
	Throat and breast, silky white, (Bill from *forehead* about 0.72, more curved and compressed)	*nipalensis.*

The habitats of these species have not yet been clearly defined, most ornithologists not having hitherto discriminated, *C. Stoliczkæ*, and Assam having been as yet very imperfectly explored, but my museum contains specimens of

1. *himalayana*, from Himalayahs.—Murree; Rutton Pir, Cashmir; Valley Cashmir; Simla; Kotgurh; Gangaotri, and Deralee, Valley of Bhagiruttee; middle ranges of Hills, N. of Mussouri; Nynee Tal; Almora; Binsur.
   Sub-himalayan tracts.— Murdan, N. W. Punjaub; various localities in the Dehra Dhoon.
2. *Hodgsoni.* only from Cashmere.
3. *discolor.* Darjeeling; interior of Bh. Sikhim; Native Sikhim; Nepal.
4. *Stoliczkæ.* Darjeeling; interior of Bh. Sikhim; Native Sikhim; Bhootan.
5. *nipalensis.* Nepal; Darjeeling; interior of British Sikhim; Native Sikhim; near Shillong. (God. Aust. also got a specimen from the Naga Hills.)

A. O. H.

Notes on the Nidification of some birds in Burmah.

By C. T. Bingham.

All the nests and eggs on which notes are herewith appended were found in the Government Teak Reserve on the Sinzaway choung, a feeder of the Yoonzaleen river, which it enters about two days' march below our frontier station of Pahpoon in Tenasserim.

20.—Microhierax cœrulescens, Lin. (*M. eutolmos*, Hodgs.)

On the 14th April, I found a nest of this little falconet in a hole on the underside of a decayed bough of a mighty Pymma tree (*Lagerstræmia Flos Reginæ.*)

I had noticed the bird about the neighbouring trees for two or three days successively, and on the date above mentioned saw her entering the hole in question.

On my sending up a servant who was with me, she flew out and perched on a low tree some thirty yards off; keeping my eye on her, I desired the man to enlarge the entrance of the hole and ascertain whether there were any eggs. In about ten minutes he announced that there were four. I then shot the bird which proved to be a female. The eggs are broad ovals, dirty whitish yellow, and stained by resting on the broken leaves, wings of dragon-flies, and bits of wood which composed the nest. I don't think the hole was made by the little falcon, but was probably an old nest belonging to a barbet. The branch in which it was excavated was about 30 feet from the ground.

[The eggs are regular, moderately elongated ovals. The shell is very thin, and fairly close in texture, but has no appreciable gloss. The original colour, as I ascertained by carefully washing a part of one egg, is a dead white, but the eggs as found were all suffused with a dirty yellow tint, such as is often the case with the very similar eggs of *Centrococcyx and Taccocua*. Held up against the light the shell appears a very slightly yellowish white.

The eggs vary from 1·1 to 1·3 in length, and from 0·85 to 0·88 in breadth. They are equally unlike eggs of *Falco, Astur* and *Circus*. I *know* no Raptorial bird that lays at all similar eggs, but probably *Baza* may. As to size and shape, I can match them exactly with large eggs of *Megalaima Franklini*, or small ones of *M. Marshalorum;* but the texture is different; as regards texture and tint of discoloration, I can match them exactly with some eggs of *Taccocua affinis*.

It must not be supposed that I suspect any mistake about these eggs; on the contrary they only confirm our own experience in regard to

Microhierax fringillarius, Drap., in regard to which I quote a note of Davidson's, that I have had lying by me for years.

"On the 10th or 11th of March, while passing through an old toungyah (clearing) I saw a falconet of the above species fly into a hole in a dry tree; on sending a man up he reported the hole to be empty.

On the 25th of March, happening to pass this tree, I saw the falconet fly out and settle on an adjoining tree, where I shot it. I then sent a man up and while he was examining the hole, the other falconet, which proved to be the female, flew out and settled close by and I also shot her; on enlarging the hole, sufficiently to admit a man's hand, it was found that there were no eggs, but at the bottom of the hole, which was about 18 inches deep, was a soft pad composed of flies and butterflies' wings, mixed with small pieces of rotten wood. On dissecting the female I found in her a fully formed hard-shelled egg, but unfortunately broken by the shot. This egg was pure white without spot or streak of any kind, the texture was fine and close, and when held up against the light it exhibited a *very* faint yellowish or greenish tint."

This I may mention was near Bankasoon at the extreme south of Tenasserim.

It will be noticed that both species build in holes in trees, line the bottom with a pad of the wings of Lepidoptera, Neuroptera, and the like, and lay white eggs.—Ed. S. F.]

23*ter*.—Astur poliopsis, *Hume*.

Passing through a *toungyah* or cultivation clearing, belonging to a Karen of a village near my camp, I noticed a hawk fly off a nest placed on a large branch of a Pymma tree (*Lagerstræmia Flos Reginæ*) which grew horizontally out at a height of fully 40 feet above the ground; it (the nest) was rather difficult of detection, as it was placed above a large bunch of orchids which prevented it from being seen from below, and it was only by retiring to some rising ground two or three hundred yards off and using my binoculars that I made it out. After waiting for sometime, and finding the bird did not return, I retraced my steps to my camp. This was on the 11th April.

Next day I returned, and secured the three eggs, very hard set they were, which the nest contained, and shot the female as she sat on a neighbouring tree after flying off the nest. This latter was very like that of *A. badius*, a poor affair of sticks very loosely put together. The eggs too very much resemble those of its near relative.

[To judge from these specimens, the eggs are rather longer than those of *A. badius*. They measure 1·69 by 1·24, 1·7 by 1·27 and 1·63 by 1·13; the average of a large series of *badius* is 1·55 by 1·22, and the longest I have measured was only 1·65 in length.

These eggs are the usual pale greyish-bluish white, devoid of real markings, though stained and dirtied here and there. The shells very fine and compact, but with very little appreciable gloss.—Ed., S. F.]

116*ter*.—Harpactes oreskios, *Tem.* (*Vide ante*, p,20.)

This handsome Trogon was very common in the Sinzaway Forest. I found on the 11th March two nests—one containing two young just hatched, and the other one broken egg and one addled one. On the 14th March I found a third nest, and on the 15th three more, all containing young ones. Again on the 19th I found a nest with two fresh eggs. In all cases the nests were mere hollows scraped or worn away in decayed branches or stumps of trees. The one addled egg differs in being a longer oval than others I have found.

[The eggs seem typically very broad, but slightly pyriform ovals; the addled egg is longer and larger in every way and doubtless is abnormal. The shell is very fine and glossy, and is in all the eggs of an uniform very pale *cafe au lait* colour, just that of some of the *Perdiculas and Microperdix*.

The addled egg measures 1·08 by 0·84; the normal eggs about 0·93 by 0·8.

I may here introduce a note of Mr. Gammies about the nidification of the allied.

Harpactes Hodgsoni, *Gould*.

"On the 19th May I found a breeding hole of this Trogon in the Ryeng valley, (Sikhim) at about 2,000 feet. It had been excavated by the bird itself in a dead and much decayed tree stump of only four feet in height and nine inches diameter. The hole was 7" deep by 3·5" wide. The entrance was also 3·5" in diameter and was within a foot of the top of the stump. A few chips lay at the bottom of the hole, but there was no other nesting material. The stump was in a thin mixed jungle of bamboos and small trees, a much more open situation than I would have expected so shade-loving a bird to choose, but probably it concerned itself more about the softness of the nesting tree than its situation. In this case the stump was as soft a one as could have been found in the whole valley.

The eggs were four in number and fresh. Four is, I believe, the full complement."

The eggs sent by Mr. Gammie, were very *Merops*-like in appearance. Very broad, nearly spherical ovals, white and glossy, but the white is not quite so pure as in *Merops*, and on the contrary has a pale creamy or ivory tinge very apparent when the eggs are laid, beside really pure white ones. They measured 1·1 by 0·94.

Other eggs of this species have been since sent me from Sikhim where they were taken in July by Mr. Mandelli. They were taken from a hole scooped on the top of truncated tree; a bare

hole devoid of lining. This was in one of the low valleys below Darjeeling.

These eggs are also broad ovals, white but with a decided creamy tinge, the shell very fine, and with a considerable amount of gloss. Three eggs were found, two of them measure 1·07 and 1·13, both by 0·93.

Thus, while *Hodgsoni* lays four nearly pure white eggs, *oreskios* would seem to lay only two, and these of a very decided though pale *café au lait* colour. The eggs of the latter are, as might have been expected, smaller, but both species lay normally *very* broad oval, glossy eggs.—Ed., S. F.]

127 *bis*.—Pelargopsis burmanica, *Sharpe*.

I am rather diffident about writing a note on the finding of the eggs of this bird, as they were found by myself personally in a made nest in the fork of a bamboo growing near the bank of a choung, a thing contrary to the habits of all kingfishers. Moreover, though I fired at the bird as she flew off the nest, I missed her. In my own mind there is not a ghost of a doubt that the eggs in question belong to the above species, as I had a close look at the bird, as she sat on the nest, with a pair of binoculars, at not more than 15 yards distance. The nest was, as I have already said, placed in the fork of a bamboo near water. It was a loosely constructed shallow cup of rough grass roots, wholly unlined, at a height of about 4 feet from the ground. The eggs, three in number, are broad ovals, and glossy white in colour. They were found on the 10th April."

[The eggs are very round ovals, pure white and very glossy. They measure 1·16 × 1·0, 1·13 × 0·99, 1·2 × 0·98. They are too small for *Coracias indica*, and *à fortiori* for *Eurystomus orientalis*, but I have not a sufficient series of the eggs of *C. affinis* to *assert* that they *might* not have belonged to this species. But then *C. affinis* no more builds a nest such as Capt. Bingham describes, than do the ordinary run of kingfishers. Again, *Nyctiornis Athertoni*, the only other bird that I know of, that occurs in this locality, and that could, I should have thought, possibly have laid these eggs, also breeds in holes in trees.

They are not pigeons' or doves' eggs—that is certain—they belong to the Merops, Roller or Kingfisher groups—and incredible as it may at first sight appear, I incline to believe that the eggs really are those of *P. burmanica*. No doubt some birds do at times go and sit upon other bird's nests, which they find unprotected by the real owners, but I never heard of a kingfisher doing this, and Capt. Bingham could not have been mistaken in the bird, which he knows well.

The circumstance borders on the marvellous, but I think it cannot be rejected.—Ed., S. F.]

142.—Hydrocissa albirostris, *Shaw.*

About a mile and a half from my camp, crowning the top of a low hill and towering high above the rest of the trees, stood a giant Pymma (*Lagerstræmia Flos Reginæ*). On the 23rd March I found a nest of the above mentioned hornbill in a hole in a huge decayed branch of this tree, fully 50 feet above the ground. To ascend the tree I had to get a ladder prepared, which a couple of Karens accomplished in about an hour and half. It was constructed of bamboo, the rungs consisting of tough short pieces driven into the tree and tied at their other ends to a couple of long bamboos, which formed the outer side piece of the ladder. So firm and strong did the affair look that I went up myself and was able to examine the nest closely. This was, as I have said, in the stump of a decayed branch; but the entrance to the hole was greatly contracted by a substance that looked like the bird's own dung; on one side however an opening had been left—a mere slit—about 10 inches long by 2½ inches in breath—through which evidently, the female received food. After carefully inspecting the outside of the [illegible] succeeded to break it open with a *dah* or Burmese [illegible] had taken up: and soon made a hole large enough for me to introduce my hand and arm. No sooner had I done so, however, than the female who was, as I feel sure, seated on the eggs, seized my wrist, with a grasp like that of a vice, uttering the most horrible cries and fluttering and struggling the while in the most determined manner. However with some difficulty I dragged her out and having ascertained with my disengaged hand that there *were* eggs in the hollow. I managed to despatch her by pressing her with my knee against the tree. I was sorry to do this but then her skin was necessary for the sake of the eggs. Having dropped her I proceeded to take the latter out; these were two in number, of a dirty yellowish stained white color, and were resting on a few fragments of bark, a feather or two, and several berries in all stages of decay. They were, I regret to say, both cracked, evidently done in the struggle of taking the bird out, who by the way was fat as butter and in first rate feather, not looking at all ragged or dirty as I expected. The hollow was about 2 feet long by 10 inches in height, the entrance being an irregular oval in shape, and measuring 10 inches by 7½ inches, after the plastered dung was all removed. I forgot to mention that my attention was attracted to the nest by seeing the cock bird feeding his mate: this he did by putting single berries one after another

into the tip of her bill which was shoved out of the slit, after receipt of each berry she withdrew her beak apparently to swallow the food. I watched him for a good ten minutes with my binoculars before he saw me and took the alarm and flew off.

[The eggs are of the usual hornbill type; but like those of *Ocyceros bicornis*, have the shells of a finer texture and are more elongated than those of *Dichoceros cavatus*, *Aceros nipalensis* and *Rhyticeros obscurus*, the only other Indian hornbills whose eggs I possess.

The eggs measure 1·99 × 1·31, and 2·02 by 1·4, so that the major is to the minor axis as 10 to 6½ to 7. In *O. bicornis* it seems to average about 10 to 7, in *D. cavatus*, 10 to 7¼, in *A. nipalensis*, 10 to 7½, and in *R. obscurus*, 10 to 7⅔. However my series is not large enough to enable me to make *certain* that these proportions hold good, but as to the fineness of the shell undoubtedly that of the eggs of the two former is of a much closer and more compact texture than that of the three latter.

The eggs are dull white in colour, as usual much stained and soiled.—Ed., S. F.]

673.—Cissa speciosa, *Shaw.*

On the 18th April I found a nest of this most lovely bird placed at a height of 5 feet from the ground in the fork of a bamboo bush. It was a broad, massive and rather shallow cup of twigs, roots and bamboo leaves outside, and lined with finer roots. It contained three eggs of a pale greenish stone color, thickly and very minutely speckled with brown, which tend to coalesce and form a cup at the larger end. I shot the female as she flew off the nest.

[These eggs, as also others received from Sikhim, where they were procured by Mr. Mandelli on the 21st and 28th of April, are rather broad ovals, somewhat pointed towards the small end. The shell is fine, but has only a little gloss. The ground color is white or slightly greyish white and they are uniformly freckled all over with very pale yellowish and greyish brown. The frecklings are always somewhat densest at the large end where in some eggs they form a dull brown cap, or zone. In some eggs the markings are every where denser, in some sparser, so that some eggs look yellower or browner, and others paler.

The eggs are altogether of the *Garruline* type, not of that of the *Dendrocitta*, or *Urocissa* type. I have eggs of *G. lanceolatus*, that but for being smaller, precisely match some of the *Cissa* eggs. Jerdon is, I think, certainly wrong in placing *Cissa* between *Urocissa* and *Dendrocitta*, the eggs of which two last are of the same and quite a distinct type.

The eggs vary from 1·15 to 1·26 in length, and from 0·9 to 0·95 in breadth, but the average of eight is 1·21 by 0·92.—Ed., S.F.]

693.—Eulabes javanensis, *Osb.*

[Osbeeck's name *javanensis* is pre-Linnæan, so is Brisson's name *maajor*, and we must adopt Cuvier's name *javanus*, for the Javan bird; but the identity of the Indian and Javan, &c., form is not accepted by the Marquis of Tweeddale and others. Having no sufficient series of Javan specimens to compare, I cannot offer a positive opinion, as to the identity of these, but I am quite unable to separate specimens from numerous localities in India, Burmah, the Andamans, Nicobars, the Malay Peninsular, and Sumatra. Beginning with specimens from Sumbhulpoor and the Tributary Mehals; going north to the Himalayas and thence down to the Straits, there is doubtless an appreciable but gradual increase in the size of the bill and bird as one goes onwards. There is however *no* break in the sequence; no point at which a line can be drawn (except entirely arbitrarily), and all appear to me to be inseparably one and the same species. But the Javan bird may be separable. If so, it seems to me that our bird must stand as *E. sumatranus*, Less Tr. d'Orn, 357, 1831, with *religiosa*, Raffl. *nec* Lin, Tr. L. S. XIII., 303, 1822, and *intermedia*, Hay, Madr. J. XIII., pt. 2, 156, 1842, as synonymes. Wagler's name *musicus* (1827) appears in this case to be barred by including more than one species—Ed., S. F.]

I saw several nest holes of this bird which was very common in the reserve, but none of them were accessible, and it was not till the 18th April that I chanced on one in a low tree, the nest being in the hollow of a stump of a broken branch. It was composed and loosely put together, of grass leaves and twigs; and contained three half-fledged young and one addled egg of a light blue color, spotted chiefly at the large end with purplish brown.

[The egg is very similar to those of *E. religiosa*, but what is very surprising, it is very considerably *smaller*.

Of *religiosa* the eggs vary from 1·2 to 1·37 in length, and from 0·86 to 0·9 in breadth, and the average of 8 is 1·31 by 0·88.

This present egg only measures 1·12 by 0·8; and it must, I should fancy, be abnormally small.

In shape it is an extremely regular oval. The ground is a pale greenish blue, and it is spotted and blotched pretty thickly at the large end (where all the larger markings are) and very thinly at the smaller end, with purple and two shades (a darker and lighter one) of chocolate brown, the latter colour much predominating. The shell is very fine and close, but has but little gloss.—Ed., S. F.]

Turdinus crispifrons.

Mr. Blyth described this species, (J. A. S., B., XXIV., 269, 1855) in the following terms:—

"Turdinus crispifrons, nobis, *n. s.* Very like T. macrodactylus (*Malacopteron macrodactylum*, Strickland, v. *Brachypterix albogularis*, Hartlaub), of the Malayan Peninsula (described J. A. S., XIII., p. 382); but smaller and non-rufous, with longer, softer, and more graduated tail, and erect, short, and stiff frontal plumes, which are much less developed in the other species; the rictal bristles are also much slighter. Length about 7½ inch; of wing 3 to 3¼ inch; and tail 3 to 3¼ inch; its outermost feather ¾ inch shorter; bill to gape 1 inch; and tarsi the same. Colour deep non-rufous olive-brown; the feathers of the head, neck, and back, pale shafted, and margined with black; a pure white speck at the tip of the smallest tertiary, and sometimes to that of the next, and probably of more: throat pure white, marked with dark olive, but differently from that of T. macrodactylus; in the latter species the feathers surrounding the throat are more or less broadly black-tipped; but in T. crispifrons they are black medially, with white outer edge and extreme tip, and the dark markings are less abruptly defined and do not surround and circumscribe the throat as in the other species: lower-parts tinged with ashy, mingled with whitish along the middle. Bill dusky, pale underneath and at tip, and legs dark olive brown. 'Not uncommon, but very local, and confined entirely to deep thickets amongst rocks.'"

This species has hitherto been so rare in collections, that I myself have never, until recently, succeeded in obtaining a specimen. Of late, however, my collectors having discovered the localities which these *Turdini* exclusively, I believe, affect, endless specimens of this, *guttatus*, and *brevicaudatus* have poured in, and as I find that the plumage in our present species is subject to a most remarkable variation and one which I do not yet fully understand, I desire to say a few words on the subject.

In the first place, I remark that with a few alterations and additions Blyth's above-quoted description represents admirably one phase of the plumage.

The colour of the upper part is, however, in none of my 82 specimens "*deep* non-rufous olive brown," in every one it is a "clear, rather pale olive brown," only occasionally slightly rufescent on the upper tail coverts and tail. The lower parts *may* be called deep olive brown.

In no specimen, and mine are all fresh and beautiful ones, can I discover the smallest ashy tinge *on the lower* surface.

I would add to Blyth's description that in the stage of plumage he described, there is a long, rather obscure, grey streak from the nostrils over the eyes and ear-coverts, that the ear-coverts are non-olivaceous brown, white-shafted, that the wing lining is deep olive brown, and that it is as often buff or pale tawny as whitish that is mingled along the middle of the under surface of the body.

But in another stage of plumage a broad frontal band, lores, band above the eye, chin, cheeks, throat, ear-coverts, sides of neck, a broad collar on the back of the neck, and at least part of the breast, are snow white; the middle of the abdomen, vent, and even tibial plumes are more or less mottled with this pure white, and the wing lining is white or nearly so.

The birds in this plumage are absolutely identical in every dimension with those colored as above. Nor is this a case of individual albinism. There are nearly a dozen specimens like this (some, however, showing here and there a single dark feather in the midst of the white), and as many more differing only in wanting the collar, or in the white only just descending to the breast.

Now the curious thing is this, my specimens are as follows:—

36 from Wimpong, 15 miles from Thatone, all killed on different dates between the 20th December and the 2nd of January.

39 from near the banks of the Toungsha Gyne R. and killed on the 8th, 9th, and 10th March, and

7 from Moumenzeik near Moulmein, killed on the 11th March.

Now every single one of the very white birds is from Wimpong.

Does this white plumage indicate a local variety? or is it seasonal?

If the former, it is not of a nature to receive specific rank, for 3 of the Wingpong birds are absolutely identical with Toungsha Gyne ones, 3 or 4 more only differ in having the lores, ear-coverts, cheeks, and streak over the eye pure white, and 5 or 6 others, in addition to this, show some white feathers on the forehead, or on the nape. Again several (4) of the Toungsha Gyne R. birds, though making no other approach to the white plumage, have the entire chin and throat right down to the breast snow white.

That the birds are identical in dimensions will be seen from the detailed measurements subjoined.*

The colors of the soft parts varied according to individuals, but not according to locality. The irides were red, mostly deep red, or rhubarb red, in a few light red: the upper mandible varied from black to dark brown; the lower from pale to *very* pale, plumbeous; the legs were a more or less dark brown, always tinged with red or purple of varying shades.

Sex too has nothing to do with it; of the whitest birds about an equal number are respectively males and females. The whitest of all (and that has, besides all the other parts above described, the greater part of the abdomen white and several white feathers on the middle of the back) is, no doubt, a male.

I think it quite possible that this variation may be seasonal—if it is *not*, then it is the most extraordinary case of local albinism I have ever heard of, since fully $\frac{9}{10}$ths of the Wimpong birds are affected by it, and $\frac{2}{3}$ths strongly so, while $\frac{2}{3}$rds show it to such an extent as would, but for the connecting links, fully justify their separation as a distinct species.

* Table of dimensions of *T. crispifrons* from various localities, recorded from fresh specimens:—

	♂							♀						
	L.	E.	T.	W.	Ts.	B. f. g.	Wgt. in ozs.	L.	E.	T.	W.	Ts.	B. f. g.	Wgt. in ozs.
36. Spec. (12 measured in the flesh). Wimpong, 15 miles from Thatone; 20th Dec. 1876 to 2nd Jany. 1877.	7·8	9·7	3·0	3·2	1·1	0·91	1·25	7·7	10·3	2·8	3·2	1·1	0·95	1·23
	7·4	9·1	2·95	3·0	1·15	0·98	1·15	7·6	9·7	2·9	3·2	1·2	0·95	1·2
	7·5	9·9	3·0	3·2	1·1	0·95	...	7·3	9·6	2·7	3·1	1·1	0·91	0·82
								7·3	9·6	2·8	3·06	1·1	0·92	1·0
								6·7	9·5	2·3	3·05	1·05	1·0	1·0
								7·0	9·35	2·6	3·0	1·1	0·98	1·0
								7·3	9·3	2·65	3·0	1·1	0·95	1·0
								7·6	10·0	3·05	3·25	1·18	0·9	1·25
								7·3	9·6	3·0	3·1	1·1	1·0	...
39. Spec. (12 measured in the flesh). Toungsha Gyne River; 8th March 1877 to 10th March 1877.	7·8	10·1	3·0	3·2	1·2	0·99	1·25	7·2	9·4	2·6	3·0	1·1	0·9	1·12
	7·8	10·1	3·0	3·2	1·2	0·99	1·25	7·4	9·8	2·9	3·1	1·2	1·0	1·13
	7·7	10·0	3·0	3·25	1·15	1·0	...	7·3	9·6	2·8	3·1	1·15	1·0	1·15
	7·9	10·0	3·0	3·2	1·2	0·99	1·25	7·2	9·6	2·6	3·05	1·1	0·99	...
	7·55	10·2	3·0	3·3	1·15	0·95	1·25	7·1	9·5	2·7	3·1	1·1	0·9	1·0
	8·0	10·3	3·2	3·31	1·2	1·0	1·25	7·0	9·5	2·7	3·1	1·1	0·9	1·12
7. Spec. (5 measured in the flesh). Moumeuzenik; 11th March 1877.	7·5	9·9	2·9	3·15	1·2	0·95	1·15	7·2	9·5	2·65	3·1	1·11	0·92	1·2
								7·2	9·8	2·7	3·1	1·1	0·9	1·1
								7·3	9·6	2·6	3·01	1·02	0·92	1·15
								7·3	9·5	2·6	3·0	1·15	0·98	1·15

I do not think, I may add, that it is in any way dependant on age, as a somewhat analogous change is, I believe, in *Gampsorhynchus rufulus*. There are much too many white Wimpong birds, to permit us to suppose that white indicates non-age, and if it indicated age we must have got a fair proportion of these elsewhere, whereas all the birds procured elsewhere are typical, except four which only deviate from the type in having the chin and throat unstreaked white.

Perhaps, after all, *it may* be an incipient species, and the white fellows running about on the grey limestone rocks, may have the pull over their darker brethren, who will hence eventually, as the lawyers phrase it, cease and determine. In that case when the species shall be fairly established, I should recommend for it the name of *T. Darwini* in perpetual memory of the great naturalist who first brought really home to most of us, the potent modifying influences of external conditions on organic life.

A. O. H.

Our Indian Cisticolæ.

Our Indian list, as usually accepted, exhibits a considerable number of members of the genus *Cisticola* (Kaup. 1829).

1.—**Cisticola cursitans,** *Frankl.*, Pro. Comm. Sci.& L. Z. S., 1831.—*Jerd.* Ill. In. Orn. pl. 6.—Sylvia cisticola, *Tem.*, Man. d'Orn. 228, 1820 ; P. C. 6,—C. schœnicola, *Bp.*, 1838.—Salicaria brunniceps, *Tem.* and *Schl.* Faun. Jap. 134 t. XX. c.

2.—**Cisticola munipurensis,** *God-Aust.*, P. Z. S., 1874, 47 ; J. A. S.B., XLIII., 165, pl. IX., f. 2, 1874.—S. F. III., 397.

3.—**Cisticola homalura,** *Bly.*, Cat. of B. Mus. A. S. B., 145, No. 822, 1849 (*sine descr.*) ; J. A. S. B., XX., 176, 1851, (*descr. orig.*) ; Ibis, 1867, 302.

4.—**Cisticola melanocephala,** *Anders.* P. Z. S. Feby. 21, 1871, 212.—*God.-Aust.*, J. A. S. B., XLIII., 165, Pl. X., f. 1, 1874.—C. ruficollis, *Wald.*, A. and M. N. H., 1871, 241.—S. F. III, 283.

5.—**Cisticola Tytleri,** *Bly.*, J. A. S., B. (?);—*Jerd* B. of I. II., 176, 1863.—*Bly.*, Ibis 1865, 44.

6.—Cisticola erythrocephala, *Jerd.*—*Bly.*, J. A. S., B., XX., 523, 1851.

It will be observed that I assume the identity of the South European and Indian birds. I have only examined one of the former (from South Italy), but that one I was able to match precisely, according to the best of my judgment, with a bird killed in the same month, in Etawah (North-West Provinces, India), and therefore, although Mr. Gray (H. L. 200) keeps them separate, I have not, knowing how much the bird varies, and how little this has as yet been recognized, thought it advisable to follow him in this.

Common as *C. cursitans* is in the basin of the Mediterranean, India, China and Japan, I cannot discover that the great difference in its winter and summer plumage has as yet been clearly pointed out.

Yet the birds look very different indeed in January and July, so much so, that Major Godwin-Austen has described the bird in its cold weather garb as a different species, No. 2 on our list.

Typically in the *hot* season, the head is a comparatively dull, lighter or darker, almost uniform brown, (in some almost absolutely so, but this is an individual difference,) more or less feebly streaked with a paler and yellower brown-or yellowish buff or fawn.

The back is darker brown, the feathers edged with much the same color as the light streaking of the head.

The tail spread, and looked at from *above*, has the central feathers brown, white tipped, the tipping preceded by a dark brown bar, and this again by a more or less obsolete barring, paler, at times with a rufescent tinge. The lateral tail feathers are darker, have broader white tips preceded by a blackish band, and that again by a very broad light rufous bar, usually much clouded with brown on the outer web.

Typically in the *cold* season, the head is very boldly striated black and pale fulvous, or buff; so too is the back.

The tail, when spread, has the centre feathers uniform brown, broadly margined (so broadly at times as to leave only a dark brown shaft stripe along the middle) with pale rufous or fawn brown; the lateral tail feathers are brown, white tipped, and darker just before the tip, but there is no rufous or trace of it. Looked at from below, at both seasons the tail feathers exhibit conspicuous greyish white and black tippings.

These are the typical plumages; but individual birds killed on the same day and at the same place, vary a little in tint; some are brighter and more rufous, some duller and browner.

Moreover in the spring plenty of intermediate forms will be found; all birds do not change their plumage at the same time; I have some birds still in almost typical winter plumage, killed quite at the end of March, and others killed about the same time already much changed.

I have the birds in both plumages from the most various localities, Sindh, Mount Aboo, Dehli, the Sambhur lake, the Dhoon, Jhansi, Saugor, Ceylon, Dacca, Bhotan Doars, Cachar, Assam, Calcutta, Pegu, Tenasserim, the Nicobars, but every specimen in the typical plumage first described killed between 1st May and September, and all those in the second between 1st November and 1st April.

The bird is one that varies very considerably in size; in one specimen fairly measured from the frontal bone to the point, the bill is only 0·42, in another, (the largest I have,) similarly measured it is 0·51. No vast difference in figures, but making a great difference in the look of the bill. Again in one bird, a male (the males are always rather larger) from Saugor, killed in August in typical summer plumage, the wing is 2·25, but I have females in both summer and winter plumage with the wing only 1·8. The average for females is about 1·95 and for the males, 2·1, but I have specimens of both sexes 2·0.

Of the 2nd species on our list I need say nothing; it will be clear to any one consulting Major Godwin-Austen's description (re-published S. F. III., 397) and his pretty plate in the Asiatic Society's Journal, that *munipurensis* is only the cold weather plumage of *cursitans*.

Jerdon's figure represents the faded winter plumage, the streaks dying out on the head and back, but the tail not yet moulted. Temminck as his figure and description (P. C. 6, f. 3) clearly show had before him a bird in winter or spring plumage.

The figure in the Fauna Japonica, is of the early hot weather plumage; the tail has been moulted, the head has become nearly uniform brown, but the back has still to grow duller.

What stage of plumage Dr. Bree's marvellously colored plate (B. of E. n. o. in Brit. II. 88) may be intended to portray, I am quite unable to suggest.

I may add that I *believe* (though of this I am not positive) that the birds moult their tails at the beginning of the hot weather and then get their central tail feathers rather shorter and broader than, as well as differently coloured to, those they have in the cold weather after the autumn moult.

This is what *Drymoipus inornatus* does, and thus it earned for its cold weather garb, Tickell's name of *longicaudatus*.

CISTICOLA HOMALURA, Blyth, No. 3 on our list, was thus described :—

Differs from *C. cursitans*, Frankl., in having a stouter bill, the whole upper parts much darker and the tail subeven, except that its outermost feathers are ¼ inch shorter than the next. The prevailing hue of the upper parts is dusky black, with much narrower rufescent lateral margins to the feathers than in *C. cursitans*, the rump however being unmixed rufescent as in that species, and the neck much tinged with the same; one specimen has some dark markings on the breast; and another in first plumage greatly resembles the adults and is conspicuously different from the young of *C. cursitans*." (*N. B.*—Only one specimen was preserved in the museum).

If we turn now to species No. 4, CISTICOLA MELANOCEPHALA, we find it thus described by Dr. Anderson, from specimens obtained in Yunan :—

"Head black, feathers obscurely margined with rufous; lores and supercilium pale rufous, faintly striated with brown; back and rump black, feathers margined with rufous cinereous; tail brown above, obscurely banded, cinereous below, obscurely banded, black spotted near the apex and tipped with pale rufous cinereous; under tail-coverts ferruginous; wing coverts brown, faintly margined with rufous, below ferruginous albescent.

"The intense black of the centres of the feathers of this species and the almost entire absence of light coloured margins to the feathers of the head separate it from *C. schœnicola*. I have specimens of the latter bird from Central India with much lighter rufous about them than the ordinary run of Bengal and Cachar specimens, and the top of the head instead of being nearly uniform dull rufous brown, as in Bengal specimens, is bright pale rufous with narrow brownish black centres to the feathers, and the two colours have a tendency to dispose themselves in lines. * My Cachar specimens resemble those from Bengal in every respect."

Of course, Dr. Anderson did not realize that the variations he referred to were not due to locality but to season, but that does not signify; his description of the species we are now dealing with gives a tolerable idea of the bird, though it overlooks the conspicuous unstreaked rufous or buff collar. That however is fully brought out in Lord Walden's description, which will be found, S. F. III., 283.

Between these descriptions the reader should be able to form a good idea of the bird, but I would also call attention to Major

* See Major Godwin-Austen's plate of his *munipurensis*.—ED., S. F.

Godwin-Austen's remark that "some specimens do not show the rufous on the neck so much as others," and to what he says about the tail under his *munipurensis*, quoted S. F. III., 397.

Of *melanocephalus*, I possess one, (the best,) of Dr. Jerdon's Debroogurh specimens, and a second, that he also gave me, from Dácca, and I am bound to say that but for the "nearly even" tail both these agree extremely well with Blyth's description of *homalura*. I by no means hazard the assertion that *homalura* is identical with *melanocephala*, and was described from a specimen of which the tail was imperfect or abnormal, but I suggest the matter for the verification of those who have a better series than myself of *melanocephala* and *homalura;* of which latter I have *none*.

Of CISTICOLA TYTLERI as described by Blyth (*unde?*) and quoted by Jerdon, I have never succeeded in obtaining specimens, although I have had considerable collections made in Dacca; but I have *melanocephala* from thence, besides the one Dr. Jerdon gave me, and it is curious that in giving me the two specimens of *melanocephala*, one from Debroogurh, the other from Dacca, he assured me that, in his opinion, they were only the adults of *Tytleri*, with one of which he said he had compared them. I cannot find that he ever recorded this anywhere, but on the strength of this assurance, the birds were thus labelled, and so stand to this day in my museum.

I should not be at all surprised if *Tytleri* and *melanocephala* did prove identical, in which case the former name has precedence; and it seems to me further not impossible that *homalura* may also be identical, in which case this name would stand. I note that all my specimens of *melanocephala* have some dark markings on the breast, thus recalling Blyth's remarks in regard to *homalura*.

The last on our list is C. ERYTHROCEPHALA, which I have only obtained in Saugor and of which Jerdon himself identified my specimen.

It is, I believe, a very rare bird. I have never obtained more than the single specimen that I myself shot, and I have not as yet heard of any one else obtaining it.

The following are the dimensions (taken from the skin) of my specimen:—

Length, 4·2; wing, 1·93; tail, 1·7; tarsus, 0·78; bill at front, 0·46.

The bill appears to me absolutely identical in size and shape with that of *cursitans*, but has the upper mandible *much* paler and the lower mandible redder than in that species.

The wing has the 4th and 5th feathers equal and longest; the 3rd, 0·02 shorter; the 2nd, 0·2; and the 1st, 0·8 shorter. These

are not the normal proportions in *cursitans*, in which the 2nd is usually much more nearly equal to the 3rd, while the first is smaller. But I have found one *cursitans*, in which the proportions of the primaries were nearly the same as in my single specimen of *erythrocephala*.

The tail is rounded, not graduated; the outermost feather is only 0·35 shorter than the central ones; this recalls *homalura*; but then the plumage is so *utterly* unlike the description of *homalura*, that one cannot believe in their being different stages of the same bird.

The legs and feet are similar in size to those of *cursitans*, but appear to have been of a darker and redder colour.

The forehead and crown are an uniform dull, orange rufous, or rufous orange buff, entirely unmixed with any other colour; the lower throat and breast are similar, only a *shade* less ferruginous, or orange; abdomen, vent, lower tail coverts, tibial plumes, the same, but *rather* paler, and a little browner, on the latter. Wing lining a rather purer buff. The chin and middle of the upper throat a trifle paler than the breast, the pale or whitish bases of the feathers showing through a little. The nape a dark yellowish or slightly rufescent olivaceous brown. The sides of the neck and the ear-coverts, the colour of the breast more or less overlaid and tinged with that of the nape.

The back, rump, and upper tail coverts, similar to the nape, but the first feebly striated with dark brown.

The wings dark hair brown, but all the feathers so broadly margined with rusty olivaceous, that except on the tertiaries very little of the hair brown is seen in the closed wing.

The tail is dark brown, obsoletely banded; the feathers very narrowly margined towards their bases with olivaceous, and very narrowly tipped with pale rufescent. Looked at from below the feathers are similar and show no trace of a dark penultimate band.

The lores appear to be much the same colour as the crown, but lighter and less pure and perhaps have a faint line through them, but my specimen does not show this clearly. I believe *erythrocephala* to be a thoroughly good species.

On the whole, therefore, although it may be that our list should include five species of this genus, I am much inclined to suspect that the number will ultimately have to be reduced to 3.

A. O. H.

Hierococcyx nisicolor, Hodgs. (*in Bly.* J. A. S. B., XII., 943, 1843.)

Mr. Blyth originally described this species under Mr. Hodgson's manuscript name as follosw :—

"Mr. Hodgson has also forwarded an apparently distinct species by the appellation *C. nisicolor*, to which I have no hesitation in referring the young specimen from *Macao* mentioned in a note to p. 240, *ante*. It is closely allied to *C. fugax*,* from which it is chiefly or wholly distinguished by its much deeper colouring. Mr. Hodgson's example would appear to be a remarkably small one, and is probably a female, but the difference of size between it and the young specimen from Macao is not greater than occurs in the respective series of *C. canorus* and *C. micropterus* now lying before me. Length about twelve inches and a half; of wing six inches and five-eighths, and middle tail-feathers five inches and three-quarters; bill to gape an inch and three-sixteenths. Colour of the upper parts very dark pure ash-colour; throat and cheeks the same, as in *C. fugax;* under-parts and tail also as in the latter species, but the flanks not barred (in the specimen): throat below the chin contrasting with the dark ashy above and laterally, and the central marking of the feathers of the throat deep ash, like the rest of this colour, it being very dark on those of the fore-neck. The Macao specimen is moulting its tail-feathers, but has the wing seven inches and a half long, being probably a young male; cap, with the throat, ear-coverts, and sides of the neck, very dark ashy, and several white feathers on the nape, as in some young examples of *C. fugax*; interscapularies dusky ash, very faintly rufous barred, imparting a shade of that colour to the parts; scapularies, tertiaries, and wing-coverts, successively more distinctly barred with bright rufous; the fore-neck tinged and the plumage of the breast tipped with the same; and the under-parts longitudinally streaked throughout with dusky, shewing no trace of bars on the flanks: lower tail-coverts dull white: bill and feet as in *C. fugax*.

Later, in his commentary on Jerdon's Birds of India, Ibis, 1866, 362, Mr. Blyth remarked as follows :—

"206.—HIEROCOCCYX NISICOLOR.

I have now seen several examples of this bird, all from the South-Eastern Himálayah, and am well satisfied that it is a distinct race. The largest adult measured 7 inches in length

* Mr. Blyth here refers to *varius*, which at that time was accepted as *fugax*.—A. O. H.

of wing. Mr. Hodgson figures it with white irides! Horsfield's only specimen of *H. fugax* in the India Museum is in immature plumage, and quite resembles that figured as *Cuculus sparverioides* by Von Schrenk; Mr. Swinhoe showed me a similar specimen from China, and Mr. Wallace has one from Borneo, while Dr. Sclater's supposed *H. varius* from Borneo (P. Z. S. 1863, p. 203) is sure to be no other; again, it is the Chinese *H. nisicolor*, nobis (J. A. S. B., XXX., 93); and I consider that *C. flaviventris*, Scopoli (founded on Sonnerat's *Coucou á ventre raye de l' Isle de Panay*), *C. radiatus*, Gm., *H. pectoralis*, Cabanis, and *H. hyperythrus*, Gould (B. of As., Pt. VIII.), represent the mature plumage of the same species, which should accordingly stand as *H. flaviventris* (Scop.), from China, Philippines, Borneo, and Java, being probably, also that noticed from Malacca by Mr. F. Moore (P. Z. S., 1859, 459.)"

Now I have read and re-read this passage repeatedly without being able to make quite certain whether Blyth meant that *nisicolor and flaviventris* were identical or not. On the whole, from his reference to his Chinese *nisicolor* and from his omitting the South-East Himalayahs from the list of localities from which *flaviventris* had been recorded, I conclude that he really considered the two distinct.

I may here note that Mr. Swinhoe, P. Z. S., 1871, 395, speaks doubtfully of the occurrence of the species which, following Blyth, he calls *flaviventris* in China; but Blyth records (J. A. S. B., XXX., 93, 1861) Mr. Swinhoe as having himself sent a specimen to him from Amoy, and in the passage first quoted, Mr. Blyth refers to another specimen received in 1843, from Macao, of which he gives the dimensions, so that this matter would not appear at all doubtful.

Moore and Horsfield (Cat. B. Mus. E. I. C., 701) unite *nisicolor* with *varius*, and so does Cabanis (Mus. Hein. IV., I., 29) but none of these authorities can possibly have had a series of both birds before them, or they could never have made such a mistake.

In the first place, there is the difference in size, *nisicolor* being altogether a slighter and slenderer bird.

Varius varies in total length in adults (in the fresh bird) from 13 in the smallest female to about 14·7 in the largest male—and in wing from 7·4 to 8·2. Young birds are often smaller.

Nisicolor varies similarly from 10·6 to 11·5 in total length and in wing from 6·8 to 7·2.

Then there is an essential difference in the markings; in *varius* at every stage, except *quite* the young bird *just* out of the nest, the markings of the sides are transverse; in adults, the abdomen, sides and flanks are all more or less conspicuously

transversely barred. Even in the nestling the sides and flanks often exhibit arrow-head marks which are very like bars, and before the young bird has been 5 months from the nest, long before it has assumed the adult plumage, before the rufous tippings have been worn away from the feathers of the upper surface, the sides have become distinctly barred.

Now in *nisicolor*, old or young, there is never any barring on the sides or abdomen; the markings are always longitudinal and streaky.

Then there is the difference in colour; the upper surface alike in old and young is conspicuously darker in *nisicolor*. In the young of this latter the upper surface is a deep liver-brown, the head darker and duskier.

In the adult it is a deep slatey blue, almost black on the head in freshly moulted birds.

As a broad general rule too, the rufous on the lower surface in *nisicolor* is always deeper, and perhaps, I should say, more ferruginous, but this is not an absolute distinction, as I have one old *nisicolor* no deeper in colour than one particularly richly colored *varius*.

I do not think any one comparing the birds carefully could unite *nisicolor* and *varius*.

At present I only know for certain of the occurrence of this species in Sikhim, Bhotan, the Khasia Hills, the Hills of Northern Tenasserim, and the plains immediately west of these during the cold season.

The following are the dimensions and colours of the soft parts of a fine male, killed on the Thatone plains last December :—

Length, 11·7; expanse, 19·75; tail, 6·2; wing, 7·0; tarsus, 0·8; weight, 4 ounces.

The legs, feet, claws and eyelids, bright yellow; gape, greenish yellow, lower mandible and region of nostrils, pale green; upper mandible horny black; irides orange red.

It is quite true, that in the Zoological Society's copy of the drawings as well as in the British Museum ones, to which Mr. Blyth refers, Mr. Hodgson figures the iris as white, and we know how extremely accurate his drawings usually are,* still both in the specimen above referred to shot by Davison and in another shot by myself near Darjeeling (in the lower valleys below which the bird is not rare) the irides were orange red, thus differing from *varius*, of which I find that I have on upwards of 30 specimens recorded the irides as,

* There is internal evidence to show that this plate was taken from a skin. It has on its reverse none of those special details which Mr. Hodgson always recorded when dealing with a fresh bird.

"gamboge yellow," "bright yellow," "lemon yellow," "yellow."

But now is *nisicolor*, though different from *varius*, the same as *hyperythrus*, Gould, P. Z. S., 1856, 96?

I think not. In the first place, Gould gives the wing as 8, which is altogether too large for our Indian species, and as is also the wing of the young bird from Macao, referred to by Blyth (doubtless the same species if Mr. Gould's bird came from Shanghai.)* In the second place, Mr. Gould figures and *describes* the tail as with 2 cross bands besides the broad subterminal one, whereas *nisicolor* (*adult*, and Mr. Gould's bird is clearly adult) has four such bands, the one next the broad subterminal one often very narrow, and the first more or less hidden by the upper tail-coverts.

Then again the breast and upper abdomen are never uniform rufous in *nisicolor*; they are always more or less streaked with albescent, and ashy, and in what I take to be the oldest birds the sides of the neck and breast are very much streaked with slatey dusky. Again the lores, ear-coverts, moustache and chin,spot are never black as in *hyperythrus*, but slatey-dusky, paler than the crown.

But is *nisicolor* by chance identical with *pectoralis* of Cabanis, admittedly from the Philippines?

The wing of a male is given at 7·15; so that so far as size goes this would suit our bird well, but then in our bird the throat is never white, but always streaked or striated, the breast is never *uniform* rufous vinaceous, the markings on the lower surface of the quills are not vinaceous white, and the tail in *pectoralis* appears to have altogether only four bands.

In the absence of specimens, though fully convinced of the distinctness of *nisicolor* from both *hyperythrus* and *pectoralis*, I cannot offer any definite opinion as to whether these two latter are distinct† or identical, but if Cabanis' specimen was fully grown, and correctly sexed, I should think it by far most probable that were distinct

As regards Mr. Blyth's contention that Scopoli's name should be applied to these two or one species, Cabanis has, I think, satisfactorily shown (Mus. Hein, IV. I. 29, *n*) that this name and *radiatus*, Gm. (S. N. I., 420) both founded on Sonnerat's

* Some doubt has been thrown on this, because Mr. Gould says his bird is in the British Museum, and Mr. Swinhoe says the *only* bird of the kind there is labelled Manilla.

† I see that Cabanis unintentionally exaggerates the difference in size between his own *pectoralis* (of which he gives the wing, in French inches and lines at 6″ 6‴) and Gould, *hyperythrus*, of which he gives the wing at 7″ 6‴, which exactly equals 8·2 instead of 8·0, which is the dimension given by Gould. The correct equivalent in French inches and lines is more nearly 7″ 3‴.

plate, do not apply. He thinks Sonnerat described and figured either a made up specimen, or *Cuculus capensis*, Gmel. Lord Walden, (Tr. Z. S. IX., pt. 2, 161) equally agrees that these names do not apply, but thinks Sonnerat's account and figure agree well with Vieillot's *Cuculus solitarius* and that Gmelin's *C. capensis*, a cuckoo in hepatic plumage, can scarcely be determined.

A. O. H.

Novelties?

Siva castanicauda.

Like S. strigula, *but rather larger and bill considerably larger, and with the greater portion of both webs of the central tail feathers and of the inner webs of the next feathers, a pure rich chestnut.*

The Hill Tenasserim representative of our Himalayan *Siva strigula* is so extremely like the latter, that I, and doubtless others, have for long overlooked its essential point of difference. I noticed that they seemed rather finer birds and that they somehow did not look precisely the same, but it never occurred to me that they were distinct.

To-day happening to have out a series of over 60 specimens of the Himalayan bird, from Simla, Mussouri, Almorah, Nyneetal, Nepal and Sikhim, it occurred to me to compare the Moolyit birds with these. At once the difference was clear.

Whereas *strigula* has about the basal 1¼ inches of the *inner* webs of the central feathers deep ferruginous verging on maroon, the Tenasserim birds have the whole of *both* webs of the central tail feathers, the inner web to within 0·5 and the outer to within 0·8 of the tip, pure, rich chestnut. Moreover, in the Moolyit birds, the feathers next the central ones have almost an equal portion of the inner webs and the basal portions of the outer webs of the same colour.

In other respects, the plumage seems to agree, but I think the orange of the crown is rather more intense than in *strigula*.

The following are the measurements, &c., recorded in the flesh of a bird killed at Moolyit, 7th February 1877 :—

Length, 6·6 ; expanse, 8·5 ; tail, 2·9 ; wing, 2·8 ; tarsus, 1·05 ; bill, from gape, 0·75 ; weight, 0·75oz. The legs and feet were dingy glaucous green ; the upper mandible dark brown ; the lower fleshy ; the irides deep brown.

Muscitrea cyanea.

Head dull cobalt blue; rest of upper parts, chin, throat and breast deep indigo blue; vent, lower tail coverts and more or less of INNER webs of four exterior pairs of tail feathers, pure white.

I can find no record of this clearly Pachycephaline form, and if the bird is not new, it must, I think, have been misplaced.

But before dealing with the species, I must explain the use of the generic term.

Muscitrea is a genus of Blyths, established in February 1847 (J. A. S. B., XVI., 121). The specimen, on which he founded it, was destroyed, and later he could not remember what the affinities of this new genus of his really were.

The following is the passage in which he defined the genus and described the species which was its type:—

"*Muscitrea*, nobis. Bill of moderate length, somewhat conical, a little compressed, the upper mandible obtusely angulated, with the curvature of its outline increasing to the tip, which overhangs that of the lower mandible, and is slightly emarginated; the extreme tip of the lower mandible also curves a little upwards; gonys straight and scarcely inflated; the nostrils small, with anterior oval aperture, and beset at base with short reflected feathers and some incumbent hairs; a few fine hair-like bristles also at the gape, of moderate length. Tarsi moderately slender, as long as the middle toe with its claw; the toes and claws suited for perching. Wings long and broad, reaching more than half-way down the tail, having the fourth and fifth primaries equal and longest, the third rather shorter, the second equalling the eighth, and the first about half the length of the third. Tail moderately developed, its feathers of nearly equal length. The general plumage inclines to be dense, and is unadorned with bright colours and glossless in the only known species.

"*M. cinerea*, nobis. Length about six inches; of wing nearly three and a half; and tail two and a half: bill to forehead (through the feathers) five-eighths, and to gape three-quarters: tarsi three-quarters of an inch. General colour ashy-brown above, greyer on the head, and tinged with fulvous on the exterior margins of the secondaries; beneath albescent, a little brown across the breast: bill light horn-colour; and feet have probably been bluish-leaden. From the island of Ramree, Arracan, where discovered by Capt. Abbott."

Now this specimen came from Ramree. Take the following measurements recorded in the flesh from a specimen of *Hyloterpe grisola*, (♂) obtained in Ramree :—

Length, 6·12; wing, 3·4; tail, 2·4; tarsus, 0·75; bill from gape, 0·8. Legs and feet plumbeous; bill brown.

Then take a good specimen of the species and compare it with each generic character, each specific trait, and observe that each and all fit in the most perfect manner.

I venture to say that no practised ornithologist can read carefully the passages above quoted, with a good specimen of *Hyloterpe grisola* (*Tephrodornis* apud Bly.; *Hylocharis* apud Gray) in his hand, comparing the two as he goes on, without admitting that the thing is a certainty, and that *Muscitrea*, Bly. is founded on the same type as *Hyloterpe*, Cab.

True, it does seem odd that Blyth who, in 1843, had already received a specimen of this species and designated it *Tephrodornis grisola*, should set to work to re-define and re-name it; he ought one would have thought to have recognized it again; but it was a dull grey bird, one that varies very much in shade and tint; he had clearly never examined it *very* carefully, or he would not have put it in *Tephrodornis*, with which the bill will not at all accord. When turning his thoughts specially to fly-catchers, he got hold of a specimen, probably differing much in tint from the specimens he had before dealt with, and examined it critically. He at once saw that it was a distinct type and defined and described it. We all know how pressed he was with work; how he was expected to do the whole work in every branch of the museum which contained many groups of which he had little knowledge. Next time he wanted the specimen it had been destroyed, or had disappeared, and amidst the multitude of specimens in all branches that he was daily examining he could not recall exactly what his type was.

There is nothing surprising in this, but even if there were the fact remains that here we have an absolutely accurate definition of all the generic characters, an absolutely accurate description of all specific peculiarities, with exact dimensions, every one of which fits *Hyloterpe grisola* to the T.

If I am correct, Blyth's name appeared some months earlier in the year than Cabanis', and Blyth's name therefore must stand. But this point, as also whether the other species now included under *Hyloterpe*, are really congeneric with *grisola* I must leave to ornithologists at home.

And now for the new species. I must premise that though very differently colored, and considerably larger, it is to my mind identical in structure, alike of bill, legs, feet, wing, and tail with *grisola*.

To whatever genus this latter may be ultimately assigned, (there *may* really be, as Bonaparte (Consp. 329) and Gray give it, a genus *Hylocharis*, Boie of 1827, founded on S. Müllers, *H. luscinia*, in which case this generic name will stand) into that same genus must our present bird be placed.

I only possess at present two adult males of this species; they measured in the flesh:—

Length, 7·8, 7·45; expanse, 12·0, 11·5; tail, 2·9, 2·7; wing, 3·72, 3·6; tarsus, 0·9, 0·9; bill from gape, 1·02, 1·0; weight, 1·25 and 1·2oz.

The bill was black, whitish at the gape; the legs, feet, and claws pale fleshy brown; irides deep brown.

Lores and a narrow band on the forehead black; rest of forehead and a broad band from forehead over the eyes, cobalt blue; crown and occiput in one specimen the same, but *rather* duller, in the other very much duller, being much intermingled with the colour of the back. The entire mantle deep indigo blue, a little brighter and inclining to cobalt on the shoulder of the wing. On the rump the greyish white bases of the feathers show through a little, but I doubt if this would be the case in life.

The quills, greater coverts and 4 central tail feathers deep hair brown, all the feathers edged externally with the colour of the back. Four outer pair of tail feathers similar, but with more or less of the inner webs pure white, the outer most of all with only a marginal band; the next two pairs, with nearly the whole inner webs, white, and the 4th with the central portion of the feather white, the white at the base on both webs, but not extending to either margin, and on the outer web, only occupying the basal half, while in the inner it reaches to within one-fifth from the tip. Chin, throat, cheeks, ear-coverts, sides of neck, breast and sides, the same colour as the back, but duller and a trifle more slatey.

Greater portion of abdomen and flanks white, shaded and streaked and overlaid with slatey dusky or slatey blue.

Vent and lower tail-coverts pure white; tibial plumes slatey; edge of wing blue; axillaries and wing lining silky grey.

There are two species, both obtained at no great distance from where this species was procured, which at first sight greatly remind one of it.

First, *Myiomela leucura*.—This has a much slenderer bill, longer tail and tarsi, is much blacker and darker everywhere, has the vent, abdomen, and lower tail-coverts black, the white in the tail on the *outer* webs, and a more or less concealed white tuft on either side at the base of the throat.

Second, *Niltava grandis;* but this has a somewhat differently shaped bill, the whole basal portion of the upper mandible hidden

by the projecting black velvety frontal plumes; the tail is much longer; the upper surface, especially the head and rump, is brighter and more purple; the whole lower surface is black or blackish, and there is no white on the tail.

Another bird something the same style of colouring is *Callene frontalis*, but this is much duller and blacker than our bird, has no white about it, and has of course a much slenderer bill, much larger legs and feet, and a shorter wing.

It will doubtless be objected, that all the *Hyloterpes*, as yet known, are smaller and slighter birds, of brown or brown and yellow plumage. No doubt this is a *primâ facie* argument against my having assigned a correct place to this new species, but all I can say is that having compared it very carefully with *M. grisôla*, bill, nostrils, bristles, wings, proportions of primaries, tail, legs, feet, claws, the two appear to me to be generically inseparable, and that *grisola* is structurally closer to *cyanea* than it is to *orpheus*, Verr, (as *figured* by Jardine) or *philippensis*, Walden, as *figured* in the Tr. Z. S.

One point more—I have no copy of Belanger's voyage aux Indes orientales, and I cannot therefore tell what *Ajax diana* of Lesson *may* be; but I gather from Lord Walden's remarks (J. A. S. B. Ex. No. 1875, 101) that he considers this species to be nothing but the Javan *Brachypteryx albifrons*. At the same time it was said to have been obtained in Pegu, where, so far as we yet know, *albifrons* does not occur.

Siva sordida.

Represents S. cyanouroptera *in the Tenasserim hills; is altogether duller coloured; wants the white tip to the bastard wing, the white margins to the secondaries, the white and black tips to the later secondaries and tertiaries and the white tips to the central tail feathers, and has the entire back, scapulars, secondary and tertiary coverts and outer webs of tertiaries, a dull earthy brown, without the faintest rusty or rufous tinge, which is confined to the upper tail-coverts and rump, and even there is much feebler than in* cyanouroptera.

It is not without very careful comparison with very large series of Himalayan specimens, that in this and other cases, I have ventured to separate the Tenasserim forms.

In this present case I have before me some fifty Himalayan *cyanouropteras* and not one of them makes any approach to the present species. The differences are doubtless small, but they seem absolutely constant and the birds look very different, although any one acquainted with the one, would at once identify the other as its representative.

The following are the dimensions and colours of the soft parts of a male killed on the 23rd February at Moolyit, recorded from the fresh specimen :—

Length, 6·2 ; expanse, 8·0 ; tail, 2·7 ; wing, 2·45 ; tarsus, 0·89 ; bill from gape, 0·75 ; weight, 0·62.

Lower mandible, legs, feet and claws, whitey brown ; upper mandible darker, but still pale brown ; irides creamy yellow.

The lores and orbital space are greyish, brownish white.

The ear-coverts pale earthy brown, the feathers finely tipped with pale fulvous and greyish white.

The entire under surface is white, the sides of the throat, breast, sides and flanks, faintly tinged with a shade of pale sullied dove-brown. The wing lining, axillaries, and basal portions of the inner webs of the quills silky white.

The entire cap, back of neck, back, scapulars, wing-coverts and outer webs of tertiaries earth brown, darker on the four first, palest on the last ; rump and upper tail-coverts fulvous brown, but not nearly so bright as in *cyanouroptera*. Quills deep hair brown, the outer webs of the primaries and the winglet deep dull blue. Some of the feathers of the forehead and over the eye, centered darker, and with a barely perceptible purplish tinge. Tail blackish dusky, inner webs paler, outer webs suffused with a blue tinge, duller and deeper than in the Himalayan bird. Exterior tail feathers with whole inner webs white ; next pair with an 0·2 white tipping and a good deal of sullied white running down the inner edge of the inner web ; next pair with an 0·07 white tipping ; next with a barely perceptible ditto ; none to central feathers.

In the Himalayan birds the lower surface is a pale drab.

Of course, the first thing that occurs to one is that these Tenasserim birds are young ones ; but it is contrary to the law of chances, to suppose that of over 50 birds shot at all seasons, in various localities in the Himalayas, not *one* should be young, and that per contra of the Tenasserim birds, shot in February and March mind, not one should be adult.

Anthipes submoniliger.

Closely resembles moniliger, *but has a larger and broader bill ; the white throat patch (strongly defined by a black band in* moniliger) *larger and scarcely perceptibly margined laterally by dark brown ; the forehead and eye streak a much brighter rufous fulvous, and the lores (olive brown in* moniliger) *the same colour ; upper surface paler and more rufescent ; axillaries pure white (sordid or pale fulvous white in* moniliger.)

This is another Tenasserim representative form, that many would scarcely consider deserving of specific separation. Still

small as the differences are, they appear to be constant between the birds of the Himalayas and the Central Tenasserim Hills, and such being the case, we must, I presume, accept the present form as a distinct species.

The difference in the size of the bill though difficult to express in figures, and the bright orange buff forehead and entire lores are very conspicuous and caught my eye the moment I saw the Tenasserim bird.

The following are the dimensions of a male of the present species or sub-species, taken from the dry skin:—Length, 5·2; wings, 2·45; tail, 2; tarsus, 0·87; bill from forehead, 0·6; from gape, 0·61. The bill black, yellowish on lower mandible. Legs and feet very pale, probably in life fleshy white.

A moderately broad frontal band, the whole of the lores, a stripe over the eye and a circle of feathers round the eye (this latter also is wanting in *moniliger*) rather pale orange buff. The entire upper surface a rich, somewhat rufescent olive, (somewhat lighter and more rufescent than in *moniliger*), becoming ferruginous on the upper tail-coverts. The tail is deep ferruginous, brighter colored and more rusty on the margins of the feathers. Wings hair brown, margins and visible portions of closed wing overlaid with a somewhat rufescent olivaceous tint. A satiny white patch commencing at the point of the chin and descending well on to the breast, (1·35 in length), something the shape of an inverted hare bell; a very narrow, scarcely noticeable brown line bounds this patch on either side, and a narrow dark line below. The rest of the breast, sides and flanks, sides of the neck; cheeks and ear-coverts, olive, only slightly paler than the upper surface, but the cheeks and ear-coverts, much more rufescent and with a tinge of the colour of the lores. Middle of abdomen, vent and lower tail coverts dull white. Shoulder of the wing pale fulvous; axillaries silky white.

I thought at first that this would prove identical with *A. gularis*, Blyth, from Arrakan, but I find that Arrakan specimens appear almost identical with Himalayan ones; want the bright rufo-fulvous forehead, lores and eye streak and have the black gorget border fairly developed.

Ixulus humilis.

Entire upper parts, cheeks and ear-coverts brown, entire lower parts white, striated longitudinally with brown.

Male.—Killed, Moolyit, Central Tenasserim Hills, 16th February 1877:—Length, 5·2; expanse, 7·8; tail, 1·8; tarsus, 0·8; wing, 2·5; bill from gape, 0·6; weight, 0·62 oz.

Upper mandible black; lower mandible, pale brown; legs and feet, fleshy brown; irides, red brown.

The forehead, crown, occiput and full broad occipital crest, back, entire visible portions of closed wings and tail, cheeks, ear-coverts, a nearly uniform brown; the upper tail-coverts similar, but with a slightly more olivaceous tinge.

Lores and an obscure stripe on either side from the gape under the cheeks and ear-coverts, a richer and darker brown.

Chin, throat and sides of neck and entire lower surface of body silky white, every where, (except on the middle of the abdomen,) with longitudinal brown streaks, very narrow (as in *I. flavicollis*) on chin and throat and breast, broader on sides, flanks and lower abdomen, and occupying nearly the whole feather on lower tail-coverts.

Tibial feathers brown.

Wing lining and inner margins of quills, silky white.

A typical *Ixulus*, harmonizing well with *flavicollis, occipitalis* and the species now commonly identified as *striatus*.

Now it will be observed that I have apparently assumed that the bird, which we obtain in the Himalayas, and which has been almost universally accepted as *striatus*, Blyth, is really that species, as also that my new species is *not* that species.

As to this latter I have no doubt; Blyth's original description (J. A. S. B., XXVIII, p. 413, 1859) is as follows :—

"IXULUS STRIATUS, nobis, *N. S.* A fourth species of this genus, affined to I. CASTANICEPS, Moore, P. Z. S., 1854, p. 141, and like that species with graduated outer tail feathers. Bill moderately stout, as in I. OCCIPITALIS, nobis. Length about five inches, of closed wing 2⅜ inches, and of tail the same; bill to gape ½ inch and tarsi ⅝ inch Colour greyish brown above, each feather with a white mesial streak; below albescent throughout; outermost feather ¾ inch shorter than the middle pair, and largely tipped with white, as is also the next, and the antepenultimate, and next within gradually less so, the outer four feathers successively graduating."

Besides this independently Tickell had a few weeks previously, (though it was not published until after Blyth's description), described the same specimen (J. A. S. B., Vol. *cit.* 452) as follows :—

PYCNONOTUS (Kuhl.) NANUS (Mihi.)

Spec. male. March 2nd, 1859. Near Tretoungplee, 3,000 feet.

Dimensions.—Length, $5\frac{5}{16}$; wing, $2\frac{3}{8}$; tail, $2\frac{1}{4}$; bill, $\frac{7}{16}$; tarsus, $\frac{5}{8}$; mid toe, $\frac{3}{8}$.

Details.—Typical, crested.

Colors.—Iris blood red brown; bill dark horn; legs reddish horn; upper parts including a blunt crest, ashy brown.

Each feather shafted whitish. Remiges and centre pair of rectrices reddish clay brown. Rest of tail dusky sepia, more and more tipt, white externally; chin, throat and all under parts ashy white.

The only one of the species observed."

Now our bird, (also as will have been observed a male,) has a longer bill, a longer wing, a longer tarsus. Its tail is considerably shorter, and it is *not* graduated.

Again the tail has *no* white on it. The upper surface is in no sense a grey brown, the feathers are *not* pale shafted, and the chin, throat, upper breast and sides *are* conspicuously streaked with black or dusky brown.

Therefore, although obtained in the same district (though at a much higher elevation, 6,000 feet) our bird is clearly not Blyth's *Ixiulus striatus*.

But then is the Himalayan Bird?

No doubt this latter *has* the tail much graduated and tipped with white, just as described, and a good many of the feathers of the upper surface are pale shafted and the lower surface is streakless; the dimensions of bill, wing and tail too agree, *but* the cap is grey, contrasting, as a rule, strongly with the olivaceous, *not* ashy brown of the rest of the upper surface, and the ear-coverts form a conspicuous dull ferruginous patch, each feather shafted paler rufescent, and the lower parts are brownish and not ashy white. I do not believe that these feathers could have escaped both Tickell and Blyth, and I therefore believe that we have still to find the real *I. striatus* of Blyth.

I cannot discover that Hodgson ever published any description of the Himalayan bird, and therefore I propose for it provisionally (*i. e.* pending further elucidation of what Blyth's species actually was or is) the name of IXULUS RUFIGENIS.

As a guide to the real *striatus*, note what Tickell says of the reddish clay brown colour of the quills and centre tail feathers; not a trace of any such tint is observable in either *humilis* or *rufigenis*.

Megalaima Davisoni.

Precisely similar to M. asiatica, *but somewhat smaller; entirely wants the black crown band and to a great extent the narrow yellowish line preceding it, and has these replaced by a broader turquoise blue band, thus diminishing the depth of the occipital red patch; pectoral red patches rather larger.*

This is another representative form of the Tenasserim Central Hills; just as *M. Ramsayi* (which is very common at Mooly-

it) represents *M. Franklini* on the higher slopes, so does our present species represent *asiatica* at Meetan and other lower localities.

The close connection of the two species is specially obvious on a comparison of the young of *asiatica* with the adult *Davisoni*. In the former, although of course the red of the forehead and occiput is much duller and mingled more with golden orange, you have the black of the crown band mingled with dull greenish blue. In *M. asiatica* the blue has wholly disappeared; in *Davisoni* the band has widened, the black has entirely disappeared, and the blue become pure.

The following are the dimensions, *taken from skins* :—

Length, 8·5; wing, 3·9; tail, 2·8; tarsus, 0·97.

No separate description of the plumage seems necessary, as I have indicated in the diagnosis the only points in which this differs from *asiatica*, unless indeed that all my specimens want the tiny red spot at the base of the lower mandible, always observable in fine plumaged adults of *asiatica*, when fresh. But many *skins* of *asiatica* scarcely show this, and possibly it might be present in the *fresh Davisoni*.

Hypsipetes subniger.

Like H. psaroides, *but smaller, everywhere much darker, a dark iron grey, and with the interscapulary region black.*

Some specimens of this species run so dark that the first time I saw them, I at once identified them as *nigerrima*, Gould. But when I saw others by no means so black only (except on the interscapulary region which is always black) a very dark iron grey darker than *ganeesa*, Sykes (*nilgheriensis*, Jerd.), and reflected that *nigerrima* was a Formosan bird, and therefore less likely to occur in the Tenasserim Hills, I got out specimens of this latter and saw at once that they were entirely distinct. Our bird lacks the conspicuous lilac grey edgings to the quills and tail, and has the black replaced everywhere except on the head, nape and interscapulary region by a dark iron grey.

The following are the dimensions and description taken from skins. (Males are somewhat larger than females) :—

Length, 8·5 to 9·5; wing, 4·5 to 4·85; tail, 4·0 to 4·5; tarsus, 0·7 to 0·8; bill to forehead, 1·0; from anterior margin of nostril, 0·55.

Bill, legs and feet red.

Chin, lores, forehead, crown, occiput, crest and interscapulary region black; some of the longer scapulars, rump,

upper tail-coverts, throat and breast a very dark iron grey; abdomen and rest of lower parts ditto, rather paler, (but still far darker than the same parts in *gancesa*); the lower tail-coverts margined with greyish white and a little fringing of this about vent and middle of lower abdomen. Wings and tail blackish brown, all the feathers very narrowly margined with dull, dark iron grey. Axillaries slatey dusky.

Leioptila Davisoni.

Like L. annectans, *Bly., but with the back and wing coverts black and the rump and upper tail coverts mingled black and deep ferruginous maroon.*

This beautiful and interesting representative species was obtained by Mr. Davision, in January in the Hills north of Moolyit at an elevation of 6,000 feet.

It was rare and shy, and only five specimens were procured. The four *males* measured in the flesh :—

Length, 7·8 to 8·0; expanse, 9·6 to 9·9; tail, 3·55 to 3·7; wing, 3·1 to 3·2; tarsus, 0·9 to 0·95; bill from gape, 0·8 to 0·85; weight, 1·12oz.

The upper and half the lower mandible black; rest of lower mandible, legs, feet and claws fleshy yellow; irides greyish brown.

The *female* measured in the skin :—

Length, 7·25; tail, 3·0; wing, 3 0; tarsus, 0·92; bill from gape, 0·8.

The plumage of the two sexes is similar.

Forehead, lores, crown, occiput, cheeks, ear-coverts, sides and back of neck, back and wing coverts, jet black. At the base of the back of the neck a series of excessively fine minute white striations forming an ill-defined patch, in some specimens approximating to a half collar.

Rump and upper tail-coverts mingled black and deep ferruginous maroon (quite different from the bright rusty ferruginous of these parts in *annectans*), the maroon greatly predominating.

Quills and tail, dull black; quills, conspicuously margined on the outer webs, and tertiaries, narrowly tipped with greyish white; all the tail feathers but the centre ones tipped white, those next the centre *very* narrowly, the next pair more broadly and so on, the exterior pair of all having the terminal 0·6 to 0·7 white.

The lower tail-coverts pale buff, far paler than in *annectans*; the rest of the lower parts, axillaries and wing lining white, tinged with pale buff on the flanks, lower abdomen and vent. The edge of the wing white.

In one specimen, 3 or 4 of the greater secondary coverts have a small patch of maroon on the outer web near the tip, and the 2 last tertiaries have a narrow edging of this colour on the outer webs towards their bases.

Structurally and in dimensions the two species appear to be identical.

Hemixus Davisoni.

Like H. flavala, and H. Hildebrandi, *but with cap and back a rich warm brown, and much less yellow on the wing.*

This curious second* representative form of the Himalayan *H. flavala* was obtained near Myawadee by Mr. Davison, considerably south of the southernmost point to which, as far as we yet know, *H. Hildebrandi* extends.

The four known species of *Hemixus* may be thus discriminated. They are all much of the same size, but *Hildebrandi* is a little the largest, and *flavala* the smallest.

Crown.	Back.	
Grey	Dull iron grey ...	*H. flavala*, Hodgs.
Blackish brown ...	Brownish grey ...	*H. Hildebrandi*, Hume.
Warm rich brown.	Warm brown ...	*H. Davisoni*, Hume.
Black, tinged reddish on forehead.	Light brownish chestnut.	*H. castaneonotus*, Swinh.

The first species ranges through the Eastern Himalayas, from a point between Simla and Mussouri, through Gurhwal, Kumaon, Nepal, Sikhim, Bhotan, apparently quite to the head of the Assam† Valley, and also occurs in the Khasia† Hills, south of the Assam Valley.

The second ranges through the northern Tenasserim Hills at any rate from the Karen Hills, north of Tonghoo, to close to Pahpoon.

The third belongs to the Central Tenasserim Hill region.

The fourth has only been recorded from Hainan in China.

* For the first, *H. Hildebrandi*, see S. F., II., 508.

† I am not quite sure of these localities, not having *myself* as yet carefully examined specimens there procured.

The following are the dimensions, colours of the soft parts, and description of a fine male, killed on the Toungya road to Myawadee :—

Length, 8·5 ; expanse, 12·25 ; tail, 3·6 ; wing, 4·04 ; tarsus, 0·6 ; bill from gape, 0·95 ; weight, 1·23.

Bill and claws black ; legs and feet reddish brown ; irides crimson lake.

The lores, feathers at base of lower mandible, under the eye, and under rather more than half the ear-coverts *deep* brown, almost black, but not so black as in *flavala* and *Hildebrandi*. Ear-coverts very pale satiny brown, a shade paler than in the other two species I think.

Entire cap, back, wings, tail, a most beautiful rich full brown, deepest on head and mantle, slightly paler on nape, and with a decided grey tinge on the rump, forming a well defined rump band. The winglet and *six* first primaries and their greater coverts and the tail feathers without a trace of any yellow margins. The later primaries, secondaries and tertiaries and their greater coverts *narrowly* margined with bright olive yellow. These margins are about ⅓rd of the width of those on the wing of *flavala*, and one-half the width of those of *Hildebrandi*, giving even the closed wing a very different appearance.

Chin and throat pure white, very conspicuously limited by the dark streak on either side, more so than in the other two species the streak being somewhat longer.

Sides of neck, behind ear-coverts, upper breast, sides and flanks a delicate ash grey, rather a different shade to that of the other two species ; middle of lower breast, abdomen, vent and lower tail coverts, white, with a more or less of faint ashy shade, chiefly in streaks and patches.

Wing lining white, with a faint yellow tinge near the carpal joint, as in the other two species.

Allotrius intermedius.

Like A. melanotis, *Bly., but has a larger bill and a deep chestnut frontal band, and wants the broad slatey nuchal half collar and the black band behind the ear-coverts. Like* A. aenobarbus, *Temm. but has a smaller bill, a much deeper chestnut frontal band, the chestnut of the throat descending to the abdomen and the grey supercilliary stripe prolonged as a wide band over the ear-coverts and completely round their ends.*

I am afraid a great many of my readers will abuse me heartily for making such a number of new species, differing only in small particulars from already well-known ones.

I am very sorry, but the culprit is not this humble individual, but our great full-bosomed Mother Nature—let her bear

[redacted]e blame—her shoulders are broad enough and she recks little of the feeble words of us mortals.

It is a most remarkable fact that the Avifauna of the Central Tenasserim Hills is specialized to a high degree.

The question has not been half worked out yet, and still see what a list we already have of Tenasserim local representative forms :—

Himalayan.	*Tenasserim.*
[redacted]ornis schisticeps.	Palæornis Finschi, *Hume.*
[redacted]s Macei.	Picus atratus, *Blyth.*
Yungipicus pygmæus.	Yungipicus canicapillus, *Blyth.*
Gecinus striolatus.	Gecinus vittatus, *Vieill.*
Gecinulus Grantia.	Gecinulus viridis, *Blyth.*
Megalaima asiatica.	Megalaima Davisoni, *Hume.*
Megalaima Franklinii.	Megalaima Ramsayi, *Walden.*
Arachnothera magna.	Arachnothera aurata, *Blyth.*
Æthopyga seheriæ, (miles).	Æthopyga cara, *Hume*
Æthopyga saturata.	Æthopyga sanguinipectus, *Wald.*
Sitta cinnamomeiventris.	Sitta neglecta, *Walden.*
Anthipes moniliger.	Anthipes submoniliger, *Hume.*
Myiophoneus Temmincki.	Myiophoneus Eugenei,* *Hume.*
Hydrornis nipalensis.	Hydrornis Oatesi, *Hume.*
Alcippe nipalensis.	Alcippe Phayrei, *Blyth.*
Stachyris ruficeps.	Stachyris rufifrons *Hume.*
Stachyris chrysea.	Stachyris assimilis, *Walden.*
Pellorneum nipalensis (Mandellii.)	Pellorneum minor, *Hume*; (?) subochraceum, *Swinh.*
Pomatorhinus leucogaster.	Pomatorhinus olivaceus, *Blyth.*
Garrulax leucolophus.	Garrulax Belangeri, *Less.*
Trochalopteron chrysopterum.	Trochalopteron melanostigma, *Blyth.*
Achnodura Egertoni.	Actinodura Ramsayi, *Wald.*
Sibia capistrata.	Sibia melanoleuca, *Tickell.*
Hypsipetes psaroides.	Hypsipetes subniger, *Hume.*
Hemixus flavala.	Hemixus Hildebrandi, *Hume.*
	Hemixus Davisoni, *Hume.*
Hypsipetes McClellandi.	Hypsipetes Tickelli, *Blyth.*
Criniger flaveolus.	Criniger griseiceps, *Hume*
Oriolus indicus.	Oriolus tenuirostris, *Blyth.*
Cryptolopha Burkii.	Cryptolopha tephrocephala, *Anderson.*
Pteruthius erythropterus.	Pteruthius æralatus, *Tick.*
Allotrius melanotis.	Allotrius intermedius, *Hume.*
Leioptila annectans.	Leioptila Davisoni, *Hume.*
Siva strigula.	Siva castaniceps, *Hume.*
Siva cyanouroptera.	Siva sordida, *Hume.*
†Minla rufogularis (collaris, *Wald*).	Minla dubius, *Hume.*
Ixulus ruficennis, Hume (*striatus* apud Auct.)	Ixulus striatus, *Blyth.*
	Ixulus humilis, *Hume*
Garrulus bispecularis.	Garrulus leucotis, *Hume.*
Urocissa occipitalis.	Urocissa magnirostris, *Blyth.*
Carpophaga insignis.	Carpophaga griseicapilla.‡ *Walden*

and I dare say others that do not at the moment occur to me.

* No one who possesses a good series of this and the Himalayan species, can deny the distinctness of the two. The larger size, the entire absence of spots on the wings and the differently colored bill render *Eugenei*, conspicuously different.—Ed., S. F.

† Both would, I think, stand better as "Schoeniparus."—Ed., S. F.

‡ Blyth discriminated this form, J. A. S., B., XVIII., 416, 1859, but did not bestow any specific appellation on it. I followed him and abstained, as I now see wrongly from

This list too includes only the representatives of *Himalayan* forms, and only those representatives, which, though they may straggle into the lowlands at some seasons, belong essentially to the Tenasserim *Hills*. Thus, to give some of the most conspicuous the examples, it excludes

Astur poliopsis, Hume, the representative of		*A. badius.*
Carine pulchra, Hume	„	*C. brama.*
Thriponax Crawfurdi, J. E. Gr.	„	*T. Hodgsoni.*
Pitta Davisoni, Hume	„	*P. cærulea.*
Sturnopastor superciliaris, Blyth	„	*S. contra.*

Then many of the Tenasserim Hill forms, though I do not as yet separate them, are so far distinguishable races that any one can tell at a glance whether any particular specimen is from the Himalayas or Tenasserim.

Take *Arboricola rufogularis*. In 35 specimens from the Himalayas, 33 have a well marked black line dividing the rufous of the base of the throat from the grey of the breast; in the other two, this line, though indicated, is imperfect.

In 40 Hill Tenasserim specimens, 36 show not the faintest trace of this. Not *one* single specimen has the line even fairly well marked, but 4 show traces of it.

In other respects the birds do not differ.

There are several other species in which similar small *almost* (but not *quite*) absolutely constant differences are noticeable.

Then again there are fully a dozen species, in which I have detected what appear to be constant differences, but which I wait to describe until I get really large series so as to make sure that the differences observable in 3 or 4 specimens, are constant in 20.

Now, as I shall hereafter show, this extraordinary specialization of the Tenasserim Hill Birds may be of the utmost importance, and in order that this extreme specialization may be clearly appreciated, it is necessary to separate as distinct species, those forms that *constantly* differ, even though in a small particular only from well-known Himalayan, Javan, &c., species.

And now to return to *Allotrius intermedius*, it will be observed that it is really and truly intermediate between the Himalayan and Javan forms. This is quite according to the rule that seems to obtain in this too little explored province.

Take *Pteruthius æralatus;* this is half way between the Himalayan *erythropterus* and the Javan *flavicapis*. It has the same yellow on the wing as the latter, but it has the grey back of the former.

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naming it. I think Lord Walden very right in separating it under a distinct name.—Ed., S. F.

But what I have to say further on these subjects must await my general account of the Birds of Tenasserim, and I shall only add that it is to be borne in mind that the Hills of Tenasserim do not belong zoographically to Burmah, but are the frontiers a distinct province which includes part, at any rate, of both Siam and China.

Allotrius intermedius.

Male.—Length, 4·7; expanse, 7·6; tail, 1·6; wing, 2·45; tarsus, 0·75; bill, from gape, 0·55; weight, 0·46 oz. Lower mandible and edge of upper mandible pale blue; rest of upper mandible black; irides, brown; legs, feet and claws, fleshy.

Lores and a conspicuous frontal band, intense ferruginous chestnut; forehead above this bright, gamboge yellow; entire upper parts and central tail feathers, a rich yellowish olive green. A pure white band encircles the eye; this band is broken by a black spot at the anterior angle of the eye; it is similarly broken at the posterior angle by the end of a black line which thence runs down behind it and encircles the whole of that portion of the white band that is below the eye. The band over the posterior portion of the eye is broader there than elsewhere; thence changing rather suddenly to blue grey, it runs back over the ear-coverts and then turns down round their posterior tips. There is no collar, but just where the grey band turns down round the ear-coverts it throws out a little angle of grey about 0·2 long and 0·1 wide at its base. This is constant in all specimens, and we have here the rudimentary indication of the broad blue grey collar of the Himalayan species.

Chin, throat, middle of breast, deep chestnut streakily extending to the upper abdomen; sides of neck, ear-coverts (except their tips, which are colored like the back) sides of breast, middle of abdomen, vent and lower tail coverts, intensely bright yellow.

Wing lining, axillaries, flanks and tibial plumes silky white; the sides of the breast and abdomen in some specimens faintly tinged with the colour of the back; wing coverts, black; median and larger broadly tipped white; quills black exteriorly at their bases, changing to deep hair brown; the primaries narrowly edged white; secondaries and tertiaries, more and more broadly margined and overlaid with the color of the back, and narrowly tipped white.

Tail, except central feathers, black, tipped white, more and more broadly as they recede from the centre feathers, and with the exterior one with fully the basal half of the outer and nearly the whole of the inner web white.

I notice that the amount of white in the tail varies a good deal in different specimens.

Pyctorhis griseigularis.

Like P. sinensis, *but upper surface a deeper and more ferruginous red; bill pale horny brown; supercillium dull grey; chin throat and upper breast pale ashy grey, rest of lower parts dull rusty.*

This is the bird to which I referred, Vol. IV., p. 505. At that time, following Lord Walden and Major Godwin-Austen, I considered that this species *might* possibly be *P. altirostris* of Jerdon.

Having now carefully re-examined my specimen, I feel confident that, whatever Major Godwin-Austen's Dafla Hill bird may be, *my* bird is *not* Dr. Jerdon's, but distinct, and, till now, unnamed.

The following are some of the leading points of difference between the two species; (relying of course on Dr. Jerdon's description being correct.)

P. altirostris.

Above pale reddish brown, deepest on wings and tail.

Beneath whitish tinged on the lower part of breast, abdomen and flanks with pale fulvescent.

Under wing-coverts pale ferruginous; bill deeper than in *sinensis* making an approach to *Paradoxornis*; claws more lengthened and less curved than in *sinensis*.

P. griseigularis.

Above bright, slightly brownish ferruginous, deepest on crown.

Beneath chin, throat and upper breast, pale ashy grey, rest of lower parts, dull rusty.

Under wing-coverts pale yellowish fawn; bill, almost precisely as in *sinensis*.

Claws as in *sinensis*.

I never yet found one of Dr. Jerdon's *own* descriptions so erroneous as this, and I feel satisfied that our Bhootan Doars bird is distinct from his.

The following are the measurements, &c., taken from the skin:—

Length, 5 5, (tail imperfect); W., 2·5; Tail (imperfect), 3·4; bill, from nostril, straight to point, 0·32; tarsus, 1.

Bill, pale horny or fleshy brown, nearly white towards base of lower mandible; legs pale fleshy or orange brown, the feet darker.

The forehead, upper part of lores and streak over the eye, deep reddish brown, each feather streaked with ashy grey. The rest of the forehead, crown, and occiput, deep ferruginous; cheeks and ear-coverts paler, ferruginous; sides of neck

yellowish rusty; nape, back, scapulars, rump and upper tail-coverts, fairly bright rusty ferruginous, in some lights slightly brownish and most rusty on upper tail-coverts.

Almost entire visible portion of closed wing bright ferruginous chestnut, rest of feathers hair-brown.

Tail, (imperfect,) moderately dark brown, feathers margined strongly on outer webs, most broadly towards bases, with bright ferruginous. Chin, throat, and upper breast, pale brownish grey or ashy; rest of lower parts dull rusty; browner and lighter on lower breast, brighter and more ferruginous on flanks and lower tail-coverts.

Dendrocitta assimilis.

Very like D. himalayensis, *but with a larger and more massive bill, much less compressed towards the tip; with cheeks, ear-coverts and throat brown, instead of blackish dusky; sides of neck and upper back tinged with the brown of the back (which is paler than in* himalayensis*) instead of being grey. Black frontal band narrower, in many specimens, conspicuously so.*

This is another of the Hill Tenasserim representative races.

I have long had a couple of specimens by me, but hesitated to separate the race on these; I have now a good series, and as all the distinctions above pointed out, hold constantly good. I see no valid reason for not distinguishing this form by a specific name.

Although so very similar as a whole yet the comparatively pale brown ear-coverts contrasting strongly with the narrow black ring round the eye, the brown sides of the neck and entire back generally unicolorous with these, and the *comparatively* pale throat readily catch any practised eye.

The throat is a dark, but clear brown, the dark portion does not descend so low as in *himalayensis* and the entire breast is suffused with the colour of the back.

Notes.

At page 60 I stated, on Mr. Blyth's authority, that *Anorhinus Austeni*, Jerd., was no other than *Craniorrhinus corrugatus*, Tem. Mr. Blyth's words are:—

"A kindred species from the Nagas was referred to *A. galeritus*, by Major Godwin-Austen, and is named *A. Austeni* by Dr. Jerdon, but it proves to be no other than the Malayan

"*C. corrugatus* (Tem. P. C. 520*), the head being now in the "possession of Lord Walden."

Lord Walden, as Editor, passes this without comment, and it is to be presumed that he concurs in this identification.

But the more I consider the question the more difficult it seems to me to accept this view.

Major Godwin-Austen is a very careful describer, and his description will be found quoted, S. F., Vol. IV., p. 493.†

Let any one read that description and say whether it is reconcilable with *C. corrugatus*. Both sexes of this species were figured and described by Temminck in the Planches Coloriées—the male as *corrugatus*, Pl. 531, and the female as *gracilis*, Pl. 535.

The female is entirely black, with greenish reflections, only the terminal ⅗ths of the tail is a kind of dull chestnut.

The male is similar, except that the black of the body and wings and basal portion of tail is said to be duller, and that the whole of the sides of the head and neck and the front of the latter are pale isabelline or fulvous white.

How can Major Austen's description, above referred to, possibly apply to any stage of this bird?

It is to be hoped that Major Godwin-Austen will himself look into this question, and either vindicate the distinctness of his namesake, or explain the extraordinary difference in plumage between the specimen described by him, and the types described by Temminck.

The matter is one of some importance. Frankly I do not, on *a priori* grounds, believe in the occurrence of *Craniorrhinus corrugatus* in the Naga Hills.

It is contrary to all experience that a Malayan (Bornean, Sumatran and Malaccan) bird like this should occur in the Naga Hills and not in the intervening Tenasserim Hills, and we have failed entirely as yet to obtain any trace of it in these latter.

At page 36 of Vol. I., I described the tail feathers of a *Polyplectron*, clearly differing alike from *tibetanus* and *bicalcaratum*. I proposed that the bird, if new, should stand as *C. intermedius*.

At that time I had not access to Mr. Elliot's splendid monograph of the *Phasianidæ*. Recently studying this work, I have discovered that the feathers I referred to must have belonged to *P. Germaini*, Elliot, *Ibis*. 1866, p. 56.

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* This should be 531.—A. O. H.

† In this description there is a slight misprint. In the 4th line there should be a full stop after "coverts."—A. O. H.

Germain's Polyplectron has been heretofore known only from Cochin China, and it *may* be (for they were picked up in a hut in a Looshai village) that these feathers really came thence, but it seems almost more likely that the range of *P. Germaini* extends further than has hitherto been supposed.

My original description of the tail feathers, with pale buff spots on a hair-brown ground, somewhat more sparsely set than in *tibetanus*, with the elongated oval, emerald green eyes, so exactly tallies with the corresponding feathers of *Germaini*, that I am rather surprised that, when alluding to the matter in his letter to the *Ibis* of June 1873, Mr. Elliot did not point out that the feathers probably belonged to that species.

Mr. G. R. Gray, in his Gen. of Birds (Vol. III., Order V. Gallinæ; Family III. Phasianiadæ; Genus *Gallophasis*; the paper dated January 1845, but perhaps not published until 1849, which date the Vol. bears) separated the *Gallus ignitus* of Vieillot's Gal. des. Ois. (Pl. 207, ♂ 1825) which was also the *Euplocamus ignitus* of his brother's, Ill. Ind. Zool. (II. Pl. 39, ♀ 1834) from *Phasianus ignitus* of Lath. (Ind. Orn. Suppl., p. lxi., ? 1792) and Shaw (Nat. Misc., Pl. 321) under the title of *Gallophasis Vieilloti*.

In 1852 Mr. Gould (B. of As., p. IV., Pl. 8) enunciated his concurrence in this separation, but failed to define the difference between the two species very accurately.

In 1863, (P. Z. S., p. 118) Dr. P. L. S. Sclater clearly diagnosed the two species :—

E. Vieilloti.

♂ ; *Niger, purpureo splendens, dorso imo ignescenti castaneo ; lateribus albo notatis ; rectricibus quatuor mediis fulvescenti albis.**

E. Ignitus.

♂ : *Niger, purpureo splendens dorso imo igneo ferrugineo : lateribus pallide castaneis, nigro variis : rectr. 4 mediis albis.*

He added, "in the latter species the flanks are pale chestnut, varied with purplish black."

These characters seemed very intelligible, and I believe were generally accepted ; but in January 1871, Mr. G. D. Elliot, in his Mon. Phas., (Pt. II., Pl. 10, letter-press) remarked that the two supposed species were identical—"*Vieilloti* representing the immature bird which is always streaked with chestnut on the sides and has the central tail feathers brown."

In this, there is of course a clerical error, it being *ignitus* not *Vieilloti* that has the chestnut on the flanks, but setting

* This is not quite correct, for in fine freshly-killed birds these feathers are snow-white.—A. O. H.

this aside, I believe I can show good grounds for believing that *ignitus*, as defined by Sclater, is no stage of *Vieilloti*.

We have shot and trapped a very large series of this latter species in the southernmost portion of Tenasserim, over 30 males and females of different sizes and ages, and we have obtained no specimen in any way approaching to the description of *ignitus*.

But more than this; we obtained a young male now before me, so young that the crest is only just beginning to show; that the spurs are only 0·41 long against from 1·1 to 1·6 in adults, and that the longest upper tail-coverts, though dull and abraded, are black and chestnut, like the females.

Now in this bird, clearly just moulted for the first time from the female plumage, the moult not yet *quite* complete, the colour of the lower back is precisely as in the adult—the four centre tail-feathers are white, with only a narrow blackish shaft stripe on the basal two-thirds. The entire lower parts are black, only a few vanishing little spots of white on the middle of the abdomen, and three or four of the feathers on each side, (some of the feathers in fact that would later exhibit the white shaft stripes) with an orange ferruginous tinge on the shaft. Just the same colour that in some old adults may be observed tinging the margins of the white shaft stripes, specially towards their tips.

With this bird before me it seems to me impossible that *ignitus*, with its pale chestnut flanks varied with purplish black, should be any stage of our bird.

But besides this, I want to know where this stage is to come from? In all these birds, as far as my experience goes, there are only two types of plumage, that of the female, which is also that of the young, and that of the male, into which the young males moult direct from the quasi-female garb.

Now the flanks of the female *Vieilloti* are in no sense pale chestnut, varied with purplish black. They are blackish brown, each feather broadly margined with white, and in some specimens, (but by no means in all), small patches of a chestnut tinge here and there over lay the blackish brown, but in no one of 16 females before me of very different sizes, and consequently probably different ages, can the flanks by any stretch of language be described as pale chestnut varied with purplish black.

Would Mr. Elliot then maintain that *ignitus* has *three* distinct types of plumage? If not, I am at a loss to understand how he considers the bird with the pale chestnut flanks varied with purplish black to be the young of the species of which the male has the flanks black, more or less slashed with white

according to age, and the female dark brown, the feathers broadly margined with white, the brown portions occasionally more or less overlaid here and there with a deep chestnut shade.

The only doubt I have in the matter is, whether Mr. Gray's name should stand. It is scarcely doubtful that the bird, described by Raffles, (Tr. Lin. Soc. XIII., p. 321, 1822) as *Phasianus rufus* is the adult female, of this species, whilst the bird that he describes as the female of his *ignitus, (op: cit.*, p. 320) which is *Vieilloti*, may be anything, and under these circumstances, "*rufus*" being the first distinct name bestowed upon the species, I apprehend that in strictness this name, and not Mr. Gray's, must stand.

COUNT SALVADORI, in his admirable work on the Birds of Borneo (Uccelli di Borneo, p. 312,1874), separates *Esacus magnirostris*, Geoffr. from *E. recurvirostris*, Cuv., under a new genus which he designates *Orthoramphus*, because the beak in the one is straight, in the other slightly recurved.

This appears to me, with all due deference to Count Salvadori, to be a typical instance of the too prevalent degradation of generic value.

Never were there two birds more distinctly representative species of the same genus.

At a little distance the sharpest eyes could not, except for difference in size, distinguish the one from the other. Their habits, attitudes, modes of walking, rising and flying, are identical; their eggs are not to be distinguished, except by the difference in size. The note is the same though, stronger perhaps in *magnirostris*.

In fact the two birds are own brothers; the one, (*magnirostris*,) the larger, stouter billed, stronger voiced, has settled on sea coasts, where buffeted by sea waves and violent storms, and dealing with stout sea shells and strongly armoured marine crustaceans, it has per force developed into what we find it, while the other (*recurvirostris*,) confining itself strictly to sheltered banks of rivers, and feeding on delicate fresh water shells and crustaceans has remained comparatively feeble. The very difference in the shape of the bills may be directly referred to the different character of the food furnished by the different localities each affects.

I must protest against the generic separation of these two species. No two species are more truly "congeners."

I HAVE OFTEN wondered whether the specific name given by Dr. Jerdon, (B. of I. Vol., II, p. 304) for the Cashmere, or Many-spotted Nutcracker, viz., *multimaculata*, was a mere slip of the pen, or had previously been used by any other writer. Jerdon attributes it to Gould, but Gould's original name was *multipunctata*, (P. Z. S. February, 1849) and under that name he figured it (B. of As., Pt. 1., pl. 17). Of course it must stand as *multipunctata*, but had Dr. Jerdon any authority for the name he uses?

I THINK THAT our Himalayan Red Honey-sucker, or Goalparah Sun Bird, commonly known as *Æthopyga miles*, Hodgs, must certainly stand henceforth as *Æthopyga scheriæ*, Tick.

I have been carefully re-reading Tickell's original description with a series of *miles* before me, and this description applies perfectly to *some* specimens. In some birds the crown *is* burnished copper with green reflections, and *not* the typical emerald green. In some again, the belly and vent *are* dusky, and not green.

Then as to the locality, it is no matter of surprise to find single specimens of purely Himalayan birds straying down in the cold season, into suitable localities, quite as far from the base of the Hills as Borabhum. Thus on the cliffs of the Jumna at Etawah, I once shot a specimen of *Tichodroma muraria*, and again in the great Bamboo clumps at Bhurey in the same district I shot *Orecocincla dauma*. Moreover, single specimens of this present species have been shot and sent me from near Allahabad, from the banks of the Soane in the Mirzapoor district, and from the station itself of Purneah.

Tickell's bird must have been a straggler, and cannot have represented a distinct local species, or other examples of it must have been procured, by Ball, Beavan, Blewitt, and many others who have collected in this *enceinte*. It cannot have been *Vigorsi*, because the yellow striæ on the breast could never have escaped Tickell, and because if it had been *Vigorsi*, specimens of this latter must have turned up in the vast region intermediate between the ghats and Borabhum, (large tracts of the most suitable country of which have been exhaustively worked) in all of which the stragglers from the far west and south, such as *Myiophoneus Horsfieldi*, *Harpactes fasciatus*, *Buceros coronatus* have been duly observed.

I am quite aware that Dr. Jerdon thought that he had, in former years, obtained *Vigorsi* in the Bastar country, but I could not find out that he had preserved any specimen; he certainly was not familiar with the bird of which *no* museum in India contained specimens, even I believe when he wrote his

work *many* years later; no collection from the neighbourhood of Bustar that I have seen, and I have examined two, has contained specimens, and we have now worked out to a certain extent the range of *Vigorsi*, which so far as ascertained is not very reconcilable with its extension to Bustar.

So far as I have traced it, *Vigorsi* is only found in the lower valley of the Tapti in Western Khandeish, in the Hills north of Western Khandeish, and along the whole line of ghats from the Tapti, to some distance south of Mahabaleshwar, but not so far as I have yet ascertained extending along the ghats to South Canara. In this limited range it is common enough, but nowhere in the Peninsular eastward of this has it ever been procured, and its appearance, 600 miles to the eastward, and nowhere in the most suitable intervening localities, is, to my mind, very doubtful.

To sum up then, Tickell's description applies perfectly to *miles*; there is no sort of improbability in a single straggler of this species occurring in Borabhum. Tickell's specimen must have been a straggler and not the representative of a distinct species; it must have been either *miles* or *Vigorsi*, and the description will not fit the latter, which moreover could not well occur there.

It only remains to notice that Tickell's name was published November 1833, J. A. S. B., Vol. II., p. 577, while Hodgson's name, which appeared in the Indian Review, Vol. II., p. 273, was only published in 1837.

In his admirable "Catalogue," (Vol. I., p. 7,) Mr. Bowdler Sharpe gives "*Gyps fulvus*, Jerd. Birds of India, I. p. 8" as one of the synonymes of my *Gyps fulvescens*.

This is an oversight; Jerdon's *G. fulvus* is really a synonyme of my *Gyps himalayensis*, as is clear from his remark that the species he refers to "is nearly confined to the Himalayan ranges in India."

So far as we know *fulvescens* never occurs in the Himalayahs, nor does *himalayensis*, even as a straggler and in the cold season, wander south of them beyond the submontane tracts.

At the same time the description, measurements and colours of soft parts seem to have been borrowed, and would perhaps fit the true *fulvus*, "The Griffon," better than our Hill bird, "The Roc."

Again (*op. cit.* p. 8.) Mr. Sharpe gives *Vultur indicus* of Tem. (P. C. 26) as a synonyme of *himalayensis*, but the bare head and neck and general tone of coloration show to my mind conclusively that Temminck's bird was really *fulvescens*.

I suspect that these two references have been by some accident *interchanged*.

At page 8, I pointed out the great difference in size existing between the two races of crested Goshhawks that inhabit, respectively, the one Southern India and Ceylon, the southern portion of the Malay Peninsular, Sumatra, Java, Borneo, &c., and the other, Nepal, Sikhim, Bhootan, Assam, Cachar, Sylhet, Tipperah, the Tributary Mehals, Pegu and Arracan, and, the northern half at any rate of, Tenasserim (as now officially constituted).

Mr. Sharpe in his Cat. I., 106, had in general terms referred to such a difference, and had remarked that if the two proved distinct, the larger northern race would bear the name of *indicus*. On the strength of this remark I adopted the name *indicus* in the passage referred to.

Further consideration leads me to doubt altogether the correctness of this view.

The bird was first described under a distinctive name, by McClelland, P. Z. S., 1839, 153, as *Spizaetus rufitinctus*, and his specific name must, I think, be retained.

True his description is by no means so detailed as might be desired, and, if it stood alone, might perhaps be set aside. But Moore and Horsfield, in their Catalogue of Birds in the museum of the Hon'ble E. I. C., seem to have identified the very specimen as *trivirgatus;* that is to say the Assamese form of *trivirgatus*, and the Assamese birds are similar to the Sikhim birds, in fact belong to the larger northern race.

Even if this were set aside, which I do not think it could be, Gray (I write subject to correction, for I have not at the moment access to the work) seems to have described a *Nipalese* specimen, A. and M. N. H., XI., 371, 1843, *i.e.*, one of the larger race, under the title of *cristatus*.

Lastly, I have been unable to find that Hodgson ever published a description of *indicus*. The reference given for this name is Gray's Zool. Miscl., p. 81, 1844, but (though I have not the work before me) I am next to certain that this page 81 is a mere list of names.

On the whole, I think, ornithologists will agree that if the larger Northern race be accepted (as, so far as my present information goes, I think it should be) as a distinct species, then it should stand under McClelland's name Rufitinctus.

Mr. Sharpe, in his Catalogue (I., 114) gives us as references to *Astur soloensis*.

Falco soloensis, *Lath. Gen. Hist.*, I., p. 209, 1821.

Dædalion soloensis, Horsf., Tr. Linn. Soc., XIII., 137, 1822., &c., &c.

Thus clearly leading an unsuspecting reader to the inference, that the specific name *soloensis* was Latham's and not Horsfield's.

But in the first place as Count Salvadori has pointed out, "Ucelli di Borneo, p. 94," Mr. Sharpe is wrong in assigning 1822 for the publication of Horsfield's paper in the Linn. Trans. It was read at the Society on the 12th April 1820, and must have been published at least as early as August 1821.

I say this because, Latham wrote the preface of the 1st Vol. of his General Hist. when issuing it, at Winchester in September 1821, yet about the middle of this volume he introduces the Soolo Falcon, quoting as a reference "Falco soloensis, Linn Trans., XIII., 137, Horsfield," thus showing that before September, he at Winchester (and H.M. mails went somewhat slowly in those days), had had the use of a *printed* copy of Horsfield's paper—and indeed other entries in this same Volume prove the same fact.

Clearly too one has no right to quote the reference first given by Mr. Sharpe. If given at all, it must stand.

Falco Soloensis, *Horsf.* apud *Lath.*, Gen. Hist., I., 209.

And must *follow* and not precede the reference to the Lin. Trans. which were, as above shown, published *before* the issue of Latham's first volume,

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Mr. Sharpe, in his Catalogue (I., 267), gives *Spizaetus orientalis*, Temm. and Schleg., Faun. Jap. Av., pl. 3, as a synonyme of *S. nipalensis*, Hodgs. No doubt the figure given does greatly resemble one stage of the young of that species, *but* at that stage, *nipalensis* has a most conspicuous crest, and again the feathering does not descend far enough on to the middle toe for *nipalensis*, and lastly we know that the particular specimen figured and described came from Japan, to which *nipalensis* does not, so far as is at present known, extend.

Others of the nearly allied *Spizaeti* exhibit a very similar plumage, at one stage.

It is all very well for Prof. Schlegel, who lumps *cirrhatus, limnaetus, nipalensis, lanceolatus*, &c., to identify his *orientalis*, with *nipalensis*, but quite impossible for ornithologists who, with Mr. Sharpe, recognize all these as distinct to *do the same.*

At page 459, Vol. II., I stated that the 2nd part of my "Rough Notes" were published in February 1870. This is a

mistake; I received my own copy in sheets as printed off, and on the first of these I wrote the date on which I received it, which accordingly now stands in my copy as the date of the whole part; but I find that the part as a whole was not issued until quite the end of March. The first part issued either at the end of February 1869, or during the first few days of March.

I wish to suggest, for the consideration of Ornithologists, whether Edward's plate of the little black and orange-coloured Indian Hawk, No. 108 (Nat. Hist. Birds, Pt. III., p. 108) on which Linnæus founded his *Falco cærulescens* may not have been founded on a specimen of *Microhierax melanoleucus*, Blyth* and not upon either *cutolmus*, Hodgs., (*bengalensis*, Blyth,) or *M. fringillarius*, Drapiez, to one of which two species all ornithologists have hitherto referred Linnæus' name.

The great stumbling block in the way of the former of these two accepted identifications is the entire absence of any nuchal color, both in Edwards' plate and description, while as regards the latter, the large size of Edward's bird, and his omission to indicate alike in plate or letter press the conspicuous black thigh patch, present almost equal difficulties.

Now with one single exception (the colour of the lower parts) *melanoleucus*, fits Edwards' figure perfectly. There is no collar; which there is in *cutolmus*, there is the very *narrow* white frontal band, and *narrow* white line, dividing the black eye and ear patch from the black crown and occiput, just as shown in the plate. Whereas out of 70 odd specimens of *cutolmus*, not one, in which these lines are *white*, has them anything like so narrow. Then again look at the barring of the under surface of the tail in Edward's plate; out of 60 Indian *bengalensis*, not one has the tail thus marked, the barrings instead, of as in Edward's figure approaching to within 0·4 of the extreme tip, not approaching within from 0·75 to one inch of this.

But the tail in *melanoleucus*, at least in the only specimens I have been able to examine, corresponds closely with Edward's figure.

No doubt, in specimens of *cutolmus* from Pegu and Siam, the markings descend nearer to the tips of the tail, and are larger and more conspicuous as a rule; but in these too the frontal band and collar are much broader, and there are other differences, which lead me to believe that we shall be obliged to separate them specifically; but even in *these* the markings on the tail are not of the shape and character of those represented in Edwards' plate.

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* Described S. F., II, 525.

But then in the only specimens of *melanoleucus* that I have seen, or that have been described (I don't know of above a dozen specimens altogether) the under parts are white, whereas in Edward's figure they are bright rufous.

Now, knowing what we do of *cutolmus*, it would not at all surprise me to learn that in one stage of plumage, *melanoleucus* was entirely rufous beneath.

At p. 23, (Vol. III.) I have made some remarks in regard to the changes of plumage of *cutolmus*, but it may be as well to explain these a little further.

The quite young bird shot in July or August, just out of the nest, will have the black of the upper surface less lustrous rather than the adult. It will have a *very narrow* frontal band and line over the eye, widening as it passes down the side of the neck, and a line under the eye, all; rather pale golden chestnut. Chin, throat, breast, middle and upper abdomen, pure silky white; thigh coverts, vent, and lower tail-coverts, rather pale bright chestnut. Nuchal collar inconspicuous, the white feathers being tipped buffy, preceded by a dusky subterminal band.

A little later, the frontal and elongated supercilliary bands have increased in width and become a somewhat brighter chestnut. The nuchal collar has become more conspicuous and is now pale buff.

Then this buff begins to fade, so too does the chestnut of forehead and supra-orbital bands, and as these grow white, a little tinge of chestnut rusty begins to show out on the chin and upper throat, and by the time collar and bands are pure white the chin and upper throat are bright ferruginous.

Then this colour begins to creep down the throat, while the vent, lower tail and thigh coverts assume a deeper ferruginous, and a shade of this colour begins to creep up the abdomen and breast, and at last in the old *female*, we have the entire under surface bright ferruginous, scarcely, if at all, paler on the breast, but with the thigh and under tail-coverts, much deeper coloured. I doubt the male's ever quite reaching this same stage. Out of 31 females, six are in this plumage. Out of 38 males, none are in *this* stage, but 8 are in what seems the corresponding final stage for the male, in which, the breast is *much* paler, a sort of palish buff, and the upper and middle abdomen, though more ferruginous and more strongly colored than the breast, is still far from uniform with chin and throat, as the abdomen is in old females.

With such changes in the case of this species, it would not surprise me to find that at one stage *melanoleucus* was bright ferruginous below, and should such prove to be the case, we shall

have at last determined satisfactorily *Microhierax cœrulescens*, of *Lin.* ex Edwards.

Should this be the case, the common Himalayan species will *perhaps* bear Hodgson's name of *cutolmus*, on the strength of Jerdon's description, B. of I. Vol. I., 42, 1862. I cannot find that Hodgson published any description of his *cutolmus*, but he may have done so. The name would seem to have appeared first, in Gr. Zool. Miscl. 1845, p. 81, as one of a long list, *sine descr.* And again it was *mentioned* in the Gen. Birds, T. 21, (*cr. entolmus*); but was this name ever published together with a description, before the B. of I. appeared?

Blyth no doubt, J. A. S. B. XI. 789, mentioned the species as "*bengalensis* of the old authors" and in Vol. XII., 180, 1843, described Nepal specimens, under this name, but this was no original title of Blyths; he was clearly adopting Brisson's name, Suppl. 20, No. 38, (nominally published 1760, but probably the supplement actually issued much later) which is apparently prelinnæan, and anyhow is avowedly founded on Edward's figure, and Linnæus' *cœrulescens*, of the S. N. 10th edition; so that if *cœrulescens* does not apply neither, will Blyth's *bengalensis*, derived avowedly as this is from the old authors," whose *bengalensis* = *cœrulescens*.

In his Catalogue, already so often referred to, I., 377. Mr. Sharpe gives *Falco atriceps*, nobis, as a synonyme of *F. peregrinus*, or as he prefers to call it, *F. communis*. In the absence of a sufficient series, it seems to me quite open to any one to unite this species with *peregrinator*, but I hardly think it can be referred to *peregrinus*.

Mr. Sharpe, at p. 378, gives a description of *Falco atriceps*, apparently an original one, and I should judge, *not* of *atriceps*, the characteristic of which is (see Ibis, 1869, 356) to have "head, nape, cheek, stripe, cheeks and ear-coverts" all forming one homogeneous, unbroken black cap. Hence the trivial name I assigned to it, (Rough Notes, I., 58,) "The Black-cap Falcon."

I have consistently from the first pointed out that it has *narrow* bars on the inner webs of the primaries, like *peregrinator*, which fact alone is sufficient to prove that it cannot be *peregrinus*, in which these are invariably comparatively broad.

I see by the way that Mr. Sharpe expresses some doubts as to whether the Japan race might not possibly prove distinct. If so, it would stand, I suppose, as *orientalis*, Gm., which was founded on Latham's "Oriental falcon," a young bird that flew on board ship near the coast of Japan.

Mr. Sharpe, discussing the variations in the common kestrel, remarks (Cat. I., 426) :—"Mr. Blyth seems to have seen a "similar (intensified) race from Burmah, as a kestrel is mentioned on his authority by Mr. G. R. Grey (Hand-l. B. I. 23) under the name of *Tinnunculus atratus*, but I have not yet succeeded in unearthing Mr. Blyth's own reference."

I fancy *atratus* in the H. list is a misprint for *saturatus*, Bly., the references for which are Blyth, J. A. S. B. XXVIII., 277, 1859; Ibis, 1866, 238; Hume, Rough Notes, 100.

There is, I think, no possible doubt, that three quite distinct species of *Polioætus* occur within our limits.

P. ICTHYÆTUS, *Horsf.* largest; length, up to 32 inches; expanse, up to 72, with in the adult the basal two-thirds of the tail pure white. Inhabits Celebes, Java, Borneo, Sumatra, Malay Peninsular, Coasts of Tenasserim, Pegu, Arracan, Chittagong, Lower Bengal, the Peninsular of India and Ceylon, Nepal and Sikhim Terai, Bhotan Doars, Sylhet, Cachar, but not, I believe, extending westwards of the Nepal Terai, along the bases of the Himalayahs.

NOTE.—Specimens from Ceylon and the Peninsular of India seem to run smaller than those from Java and the other Islands noticed. A fine Ceylon female only measured 26·5 in length.

P. PLUMBEUS, * *Hodgs.* medium size. Length 22 to 25 (*max.*); expanse, 55 to 60; wing, 16·5 to 18·75; entire upper surface of

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* Hodgson never, I believe, described this species; he only *mentioned* it, J. A. S. B. VI., May 1837, p. 367. Blyth again mentioned the name. *op. cit*, XI, 100, 1842, but only to identify it doubtingly, with *blagrus*. But I fully characterized the species, by Hodgson's name, Nests and Eggs, Pt. I. 43, 1870, and no one having intermediately recognized its distinctness it will stand under Hodgson's name.

Mr. Sharpe remarks, Cat. I., 453 "after a careful examination of Mr. Hodgson's plates I have not been able to distinguish his *plumbeus*....Although the uniform tail he figures more resembles *P. humilis* (which is now known to extend to Assam, and may therefore well occur in Nepal) there is not a specimen in Mr. Hodgson's collection and as all his other birds of these species are in the museum, and as he also figured a true *P. ichthyætus*; on the same plate I consider H. *plumbeus* to be probably an unfinished picture of the large species."

But amongst Mr. Hodgson's original drawings are three beautifully finished figures of *plumbeus*, one devouring a Roohoo fish, which also is highly finished. Two of these figures show the upper surface of the tail perfectly plain and unmottled with white; the third shows the lower surface, with the basal portion, mottled with white. (See also S. F., III., 386.)

On the back of one of the plates he gives the dimensions of 7 different specimens:—

			F.	♀.	mas.	fœm.	fœm.
Length	1·10·½	1·11·0	2·0·½	1·11·	1·11·½	2·0·½	1·11·½
Tail	9·½	9·½	11·½	9·½	?	10·0	10·½
Expanse.	4·8·0	4·8·½	4·11·½	4·8·½	4·9·½	4·11·0	4·10·½

Showing clearly what the species he figured was even if the tail did not show this.

In a note he says "Horsfield's *ichthyætus* this bird, save that his is larger."

There is *no* figure of *ichthyætus* amongst the drawings I have, but on the face of one of them is a note, "756 is Horsfields or *I. typicus*. Home, Oct. 38," showing that he recognized the two species and had sent home a drawing of the true *ichthyætus* of Horsfield.

tail uniform ash brown. Inhabits the sub-Himalayan ranges and submontane tracts, (occasionally in the cold season straying some distance into the plains) from the borders of Afghanistan to Suddya in Assam, occurring in common with the preceding in the Nepal, and Sikim Terais, Cachar, and Western portions of Assam.

P. HUMILIS, *Müll* and *Schl.* smallest. Length, 19 to 22 inches; expanse, 48 to 54; wing, 14 to 16; upper surface of tail, pale brown with dark antepenultimate band and white tipping. Inhabits Sumatra, Malay Peninsular, and Eastern shores of Bay of Bengal as far north at any rate as Cape Negrais.

Mr. Sharpe says this species is known to occur in Assam. Of course *it may;* but I have never seen a specimen from Arracan, Chittagong, Tippera, Sylhet, Cachar or Assam, and I should like to know the evidence on which the occurrence of this species in Assam rests. I have had supposed *humilis* sent me from Assam, but in both cases the specimens proved to be *plumbeus*.

MR. SHARPE, (Cat. I., 452) declares the genus *Ichthyætus* Lafr. (Rev Zool. 1839, 196) inadmissible, "as there is not the slightest indication of a type."

But Blyth (J. A. S. B., XII., 304, 1843) defined Lafresnay's genus, as restricted to the sea eagles with smooth talons, like an ospreys, and classed under it *Horsfieldi*, Vigors (*F. ichthyætus*, Horsf.) and *nanus*, Blyth (*humilis*, Müll. and Schl.) and I should have thought that this was sufficient to give the genus *Ichthyætus*, Lafr., a *locus standi*. Moreover I must note that though there may be no express mention of a type in Lafresnay's paper, still by adopting Horsfield's *specific* as a *generic* name, he clearly implied (in accordance with the practice of writers since Linnæus' time) that Horsfield's species was the type of his genus.

I submit that ICHTHYÆTUS ought to stand.

IN CONNECTION with this subject, I notice that authors generally (*e. g.*, Moore and Horsf. Cat. B. H. E. I. C. Mus., 52; Sharpe, Cat. I., 452; Salvad. U. de. B. 6, &c.) cite the specific name *Horsfieldi*, as Hodgson's, Blyth J. A. S., XII., 304; but Blyth does *not* cite the name as Hodgson's, and Hodgson on his own plate cites it as *Vigors*, with a note of interrogation as to whether that name is equivalent to his *plumbeus*.

SOME YEARS ago (Ibis, 1870, 497) Mr. Tristram described a new Stonechat under the name of P. ROBUSTA.

This is what he said of it :—

"I have long had in my possession, from Mysore, a giant Stonechat in summer plumage, very brightly coloured, which had often puzzled me. I lately received from my friend Mr. Brooks a specimen of the same bird in winter plumage, given him by Mr. Jerdon, who procured it in the Sutlej valley. I have had the pleasure of introducing Mr. Jerdon to his old friend, which he at once recognized; and it was evident the two specimens belonged to the same species, hitherto undescribed I propose to name it.

Pratincola robusta, *Sp. n.*

P. maxima, coloribus P. pastori simillima, sed intensioribus; pectore intense rufo, abdomine rufo nec albido; striga nuchali angusta.

Long. tot. 5·95, alae 3, caudae 2·45 poll.

It is thus very much larger* than any known species of *Pratincola*. It may be further discriminated from *P. pastor* and *P. sibylla* by the intensity of its rufous breast extending down to the abdomen without any white; and also from these and from *P. rubicola* by the very narrow white spot on each side of the neck instead of the bold white patch, while in the breeding plumage, the black of the head and back is most intense. I am very fortunate to have the decided authority of Mr. Jerdon for describing this most interesting bird as new. Its size is the more remarkable when contrasted with the small *P. indica*.

In 1872, (J. A. S. B., XLI., 238) Dr. Stoliczka described a presumed new Stonechat, which he obtained in Cutch under the name of *P. macrorhyncha*.

His remarks on and description of the species will be found quoted, S. F. IV., 40, *n*.

It will be observed, that Dr. Stoliczka's specimens were not sexed, and that he only presumed them to be females.

At the time and for long after, relying solely on descriptions and having no specimens to compare, I was disposed to unite this supposed new species with *P. Hemprichii*, but after once examining specimens of this latter I discovered at once my error, *macrorhyncha* being a much larger bird.

One of the types of *macrorhyncha* was presented to my museum by Dr. Stoliczka, and recently in going through a collection of birds, presented by Capt Butler, H. M. 83rd, I at once recognized a female Stonechat labelled *rubicola*, as belonging to the same species.

* This of course is a mistake, as pointed out by Messrs. Marshall, S.F., III., 330; *P. insignis*, Hodgson, is considerably larger.—Ed., S. F.

This bird was a female ascertained by dissection, and was killed by Capt. Butler at Deesa on the 12th November 1875, at the time he recorded the following note on it :—

"Length, 5·87 ; wing, 3·0 ; tail, 2·62 ; bill at front, 0·44 ; from gape, 0·75.

"Irides, very dark brown ; legs and feet, black ; bill, blackish brown, horny at base of lower mandible."

In plumage this specimen agrees entirely with the type of *macrorhyncha* that I possess. This measures (the skin) :—

Length, 5·6 ; wings, 2·9 ; tail, 2·3 ; bill at front, 0·5 ; from gape 0·7.

These birds are not at all like *rubicola* or *indica* ; they are altogether larger and paler ; have much longer bills, almost entirely want the white wing patch. The chin and throat quite white, the breast with merely a very faint fulvous tinge. In fact the lower surface is precisely like that of females of our Indian *rubetraoides*, Brooks, killed at the same season.

The upper surface too is very like that of *rubetraoides*, but paler still, and the striations not so broad. Of course the white tail of *rubetraoides*, (similar to that of the European *rubetra*) at once distinguishes it from our present bird.

It has occurred to me that *macrorhyncha* is very probably the female of *robusta*, in which case, the latter name has precedence, and the species having been procured in Mysore, Northern Guzerat, Cutch and in the Himalayas in the valley of the Sutledge has a very wide distribution in India, and possibly may not be very rare, though usually confounded with *P. indica*.

Ornithologists, especially in Southern and Western India, should be on the look out for this species next cold season.

PRATINCOLA INSIGNIS, just referred to in a foot note, is a very rare species in collections, and its habitat has been wholly mistaken—Jerdon says, B. of I., II., 127 :—

"This species has only as yet been found in Nepal, and probably comes from the most northern districts, perhaps, as Mr. Blyth hints, from Thibet."

This is quite a mistake—Mr. Hodgson distinctly records on his plate that this occurs in the plains only, and both his specimens were obtained (on January 10th) at Segowlee a well-known Cantonment in the plains of the Champarun district, some 16 miles south of the Nepal frontier and on the main road to Khatmandoo.

The male (I have never seen a female) may be recognized at once, independent of its size, by the amount of white about it. Nearly the whole of the wing coverts (excepting those at the

edge of the wing, a few of the lesser, some of the median and nearly all the greater secondary coverts, which are black,) together with the whole of the upper tail-coverts and rump and a large patch at the base of the primaries are pure white.

Mr. Blyth, whose description Jerdon quotes, assumes that the bird he described was in summer dress, but his description accords with Mr. Hodgson's figure, and this was taken from specimens obtained on the 10th of January, and therefore presumably in winter dress.

The following are the dimensions noted from the types when fresh by Mr. Hodgson—and that gentleman's manuscript note recorded on the plate:—

	mas.	mas.
Tip of bill to tip of tail ...	0 6¼	6⅓.
Bill, length of ...	¾	13/16.
„ width ...	¼	—
Tail ...	2⅓	2⅝.
Closed wing ...	3 1/16	3⅛.
Expanse ...	0·11·0	caret.
Tarsus ...	1 3/16	1⅛.
Centre toe and nail ...	7/8	⅞
Hind ditto ditto ...	5/8	⅝

"Segowlee, January 10th, *mas.* pl. full. Tongue, simple, pure cartel., bifid; wings plus mid tail; ⅛ inch less, its tip. 3-4 quills longest, 1st small, 4th plus 2nd. Tarsi, smooth high, toes compressed, simply ambulatory; laterals subequal; central long; hind large, but not depressed, shorter than either lateral, but with its longer claw exceeding either with theirs. Nares, small, oval, lateral, shaded by tiny nude membranous edge or scale. Is like our hill *Saxicolas*, but much larger and they have all 3 quills graduated, the 4-5 being longest, 6th nearly or quite equal 3rd; so also in robin, or 416.* In big and small stonechats the lateral toes are *un*equal however trivially and so in Robin, and in both the nails are slender and acute, *very*; the thumb also is big and with its nail exceeds the laterals and theirs and equals the central only; in this big one the thumb is rather less and *not* equal to the mid toe only."

Since Mr. Hodgson's time I only know of this species having been obtained, on the banks of the Ganges near Cawnpoor, by the Marshalls and by Mr. Mandelli, in the Sikhim Terai and Bhootan Doars, but others may have obtained it, and if so I should be glad to learn the fact.

I myself expect that the head-quarters of the bird will prove to be in the valley (not the Hills) of Assam.

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* Mr. Hodgson's 416 is Pratincola ferrea.—Ed.

PHYLLOSCOPUS BROOKSI, Hume, described from Tenasserim, STRAY FEATHERS, Vol. II., p. 505, has been kindly compared for me in England by Mr. BROOKS with *Phylloscopus Schwarzii* Radde, and proves, he says, as he recently suggested (S. F IV., p. 277) to be identical with this species.

P. Schwarzii was described (p. 261), and figured (Pl. IX, F. 1. a, b, c), by Radde, in his Reisen im Südem von Ost-siberien, 1863.

The plate however according to my notion conveys no adequate idea of the bird, the coloring neither above nor below agrees with any one of my now numerous specimens killed from October to April and utterly ignores in both figures of the bird, its most conspicuous feature, the long superciliary stripe. It is as well to note that Mr. Brooks says after examining 4 specimens in Europe, that the length of the bill is very variable in this species, as is also the colour of the under surface, which varies almost as much as does that of *Locustella Hendersoni*. This is not very apparent in the specimens killed in Burmah during the 6 cold season months. Radde obtained his specimens in the autumn in Tarei-nor and in May in the Bureja mountains, so that his specimens should not differ so much from ours.

He gives the length of his largest specimens at 5 English inches, ours run to 5·75, but I suppose he merely measured from the skin as his other dimensions, though not corresponding exactly with those of any of our specimens agree better.

On the whole, after carefully re-reading the description, I accept Mr. Brooks' verdict, but I cannot help wishing that he could have examined the types, because two very similar birds may visit Siberia, like *Hippolais rama and caligata*, and the specimens sent to Europe as *Schwarzii*, might be *Brooksi*.

I NOTICE that *Ioras* killed about Deesa and sent me with other birds by Captain Butler, all appear to pertain to Captain Marshall's new species *I. nigrolutea* (S. F. IV., 410).

I am asked by two correspondents whether I consider this race really distinct. Ten years ago I pointed out to the late Captain Mitchell of the Madras Museum how our Etawah birds differed from those he sent me, and sent him specimens to compare. He considered them distinct, but I was doubtful and the matter dropped.

I have often since thought of separating the bird, but seeing how closely the central Indian birds approach it, I have always been dubious as to its being a good species.

The tail is the only point in which the species or races always differ, but I think that in this they do differ constantly

and failing any evidence of intermediate forms, I think that we must accept *nigro-lutea*, at present at any rate, as a good species.

By some misprint, *Bubo ketupa*, Kaup, is given in Mr. Sharpe's catalogue, Vol. II., p. 6, as a synonyme of *Ketupa flavipes*. Kaup's name really applies to *K. javanensis*, under which it is correctly given, *Op. cit.* p. 8.

At page 60 of the 2nd Vol. of his catalogue, Mr. Sharpe describes a new species of *Scops* from the Eastern Ghats under the name of *S. rufipennis*. But with all deference to Mr. Sharpe, who is doubtless quite correct, I must say that his description of this species reads uncommonly like the true *Scops malabaricus*, Jerd. Madr. Jour. Sci XIII., 119, which is found alike on the Eastern and Western Ghats, and which Mr. Sharpe in my opinion wrongly unites with *Scops griseus* of the same author. I, at any rate, know what Jerdon intended by the two species as he went over my collections with me, and admitting that *rufipennis* is probably also distinct, certainly *malabaricus* is quite distinct from *griseus*. The latter occurs throughout the length and breadth of the land; the former only in well-wooded, heavy rain-fall districts.

Then again, surely neither the name *malabaricus*, (even if it did apply) nor *griseus*, could stand for the species to which the latter name really applies and to which Mr. Sharpe applies the former also. Most clearly *griseus*, Jerdon, of which I have many specimens from Ceylon, is the *Strix bakkamuna* of John Reinhold Forsters, Zoologia indica, sp. III., p. 13, Pl. III., 1795. This plate to my mind fixes the species—it is not bad, and it could not possibly have been intended to represent any other species inhabiting Ceylon.

Well, this species is also *bakkamuna* of Lath. Ind Orn. I. 56, 1790, and it is also (they mutually quote each other) the Indian eared owl of Lath.'s Syn. I. 127, and the little Hawk Owl of Ceylon of Pennant's Indian Zoology, t. 3. and the *Otus indica* of Gmelin, I. 289, No. 20, 1788, by which latter name the species should, I should fancy, stand.

Athene cuculoides.—The specific name of this species is attributed in the catalogue, to Gould, Cent. Himalay, B. pl. 4. No mention is made of Vigors, who first described the species, Pro. Com. Sci and Corr. Z. S., 1830, p. 8. It is just possible

(for I cannot find out the dates on which the committee's proceedings were actually published) that Gould's plate may have *appeared* first, but even then the advertisement of Gould's book distinctly states that the nomenclature and letter press are by Vigors.

I HAVE SATISFIED myself that the black *Turdulus*, for which (*ante* p. 63) I proposed, if really new, the name of *T. Davisoni*, can be nothing more than an extremely old *T. sibericus*, Pall.

I have never however seen or read of any specimen, either so dark in colour or with so little white about it.

The most mature specimens I have seen, resembled the figure of the old adult in Naumanns Vög. Deutschl, (Suppl. XIII. t. 363) in which the body is very blue, and the whole centre of the abdomen, vent, and almost the whole visible portions of the lower tail-coverts, and broad tips to the outer lateral tail-feathers were white.

I did not therefore recognize this bird, which is almost black; has *no* white on the abdomen, has not even according to Pallas "*crissum albo varium*," but has only *narrow* white tippings to the lower tail-coverts and outer lateral tail-feathers. The bird looks quite different, but there is the characteristic white bar on the under surface of the wing and the white axillaries, and comparison satisfies me that the birds are the same.

Ramsay got this in Karennee, and now we get it at Mooleyit and it probably extends during the cold season (our bird was killed on the 15th February) the whole way down the back bone ridge of the Malay peninsular, just as it does to China and Japan.

I SHOULD be very glad to understand how *Pomatorhinus mariæ*, Wald. (A. and M. N. H. June, 1875; S. F. III., 404) differs from P. *albogularis*, Bly. (J. A. S. B. XXIV., 274, 1855).

To my idea they must be identical.

I can discover no essential difference so far as descriptions go. I have numerous specimens from the locality whence Blyth's type came, and these answer perfectly to Blyth's indications and to Lord Walden's more elaborate description. Lord Walden described a female,—wing, about 3·5; Blyth, a male of which the wings run from 3·8 to 3·9.

So few birds, comparatively speaking, are named after ladies, that one grudges the loss of even one of these delicate tributes of affection, but still I much fear that Maria's *Pomatorhinus* must disappear into the shadow-realms of synonyms.

I WISH to call attention to the fact that POMATORHINUS OLIVACEUS, Blyth, J. A. S. B., Vol. XVI., p. 451, 1847, from the Ye district of Tenasserim, and which Blyth later united with *P. leucogaster*, Gould, is, in my opinion, a perfectly good and distinct species, though doubtless very closely allied to *leucogaster*.

In *leucogaster*, (from the Himalayas) the whole upper surface is darker and greener; in *olivaceus* (from the Ye district) it is lighter and far more rufescent, the difference in the colour of the tails being striking.

In *leucogaster*, the deep ferruginous patch behind the ear-coverts is continued down the sides of the body and flanks, the head is much greyer than the rest of the upper surface of the body, the frontal feathers are much edged with blackish, and there is only a faint trace of a rufous collar on the base of the neck.

In *olivaceus*, the deep ferruginous patch is not extended down the sides of the body, &c., the head is not a bit greyer than the body, there is very little black edging to the frontal feathers and from the ferruginous patch on either side, a broad ferruginous half-collar, almost as deep in colour as the patch itself, runs across the base of the back of the neck.

Blyth's specimen can never have been a good one, and it is doubtless easy as I have found, when I had only one or two indifferent specimens to confound the two, but with a series of each laid out before one, it seems wonderful how one can ever have considered the two species the same.

In size, the two races do not differ perceptibly. In both I find the wings vary from about 3·4 in the smallest female to 3·85 in the largest male.

In *schisticeps*, I find specimens in which the wing considerably exceeds 4.

WITHOUT EXAMINING Verreaux's type it is impossible to speak positively, but so far as measurement, description, and figure go, his *Siphia Hodgsoni* (Nouv. Archiv. du Mus. VI. Bull. 34, 1870; VII. Bull. 29, 1871, IX. pl. IV. f. 4, 1873) is nothing else than *S. erythaca*, Blyth and Jerd. (P. Z. S. 1861, 201.

No doubt the description there given is most faulty, as I have already pointed out (S. F. Vol. II., p. 458) and this may have misled Verreaux who refers to Jerd. and Bly.'s *Siphia erythrura* (sic) as apparently nearly related.

On a former occasion, (S. F. Vol. I., p. 429, Dec. 1873) I discriminated the Ceylon *Phodilus* and pointed out clearly wherein it differed from the Himalayan birds. I did not then name it,

because I was under the impression that Malayan specimens differed similarly. This, however, does not seem to be the case, and having now seen a second Ceylon specimen, presenting the same specific characters as the first, I desire to propose for it provisionally the name of PHODILUS ASSIMILIS.

THERE IS A species to which I desire to call the attention of all Indian ornithologists, as I have been quite unable to make it out.

It is mentioned in Blyth's commentary on Dr. Jerdon's "Birds of India," Ibis 1867, 23, as follows.

"SUYA GANGETICA, Jerdon, *in lit.* sp. nov.

"Plain brown above, rufescent on the head; lower parts, much paler; throat, whitish. Wing, 2·25 inches; tail, 3·75 inches.

"Common along the upper Ganges."

I have never been able to procure a specimen, or even to hear of any one else who had.

I should be very thankful for any information in regard to this species.

SUTHORA DAFLAENSIS, God.-Aust, (S. F., IV, 490), is, it would seem, now admitted by its describer to be identical with his *S. munipurensis*, (S. F., IV, 216); at least so says Gould in the last number (XXIX) of the Birds of Asia.

MR. HOWARD SAUNDERS has merited the gratitude of all ornithologists, by his very valuable monographic note on the *Sterninae*, (P. Z. S. 1876, 638).

I shall notice this in detail hereafter, as there seems to me to be a good deal to add as regards distribution, and there are a good many points in regard to which I am unable to agree with Mr. Saunders, but at present I only desire to note, that the bird that he has figured, pl. LXI, figure 2, as *Anous melanogenys*, is, in my opinion, beyond all doubt, *A. leucocapillus*, while although the bird that he figures (pl. cit, figure, 3) as *leucocapillus*, *may* be one stage of *melanogenys*; it differs altogether, both from Mr. Gray's original figure of, and from a specimen I identify as, the true *melanogenys*.

MR. ELLIOT seems to me to be in error in uniting, as he does in his monograph of the Phasianidæ, *Pucrasia castanea*, Gould, with *Duvauceli* of Temminck, P. C. 545.

Mr. Elliot begins by saying "Duvaucel's Pucras pheasant was figured and described by Temminck in the Planches Coloriées as long ago as the year 1834."

The figure, a vile thing, bears doubtless the inscription, "Tragopan Duvaucel, *male*," but in the text Temminck explains this, withdraws the name, and distinctly states that the bird he figures is identical with *Tragopan pucrasia*, Gould, then recently beautifully figured by Mrs. Gould in the Cent. Him. B. To this plate which is unmistakeably *Pucrasia macrolopha*, Temminck refers, and he heads his text with Gould's name.

But more than this his description shows, that whatever idea may be conveyed by Prêtre's wretched picture, Temminck was describing *macrolopha* and *not castanea*.

The characteristic of this latter is to have the sides and back of the neck (and perhaps in some cases the upper back also) chestnut like the breast.

Now Temminck distinctly says, "le *devant* du cou, la partie médiane de la poitrine et du ventre, ainsi que les convertures du dessous de la queue sont d'un beau marron foncé; *la partie postérieure et les côtés du cou*, le dos les flancs et les cuisses sont couverts de plumes longues et pointues, à bande centrale noir, entourée par une teinite grise plus ou moins pure." This is absolutely conclusive as to the species described by Temminck being, as he himself declared, Gould's and Gray and Hardwicke's *pucrasia, i. e., macrolophus* of Lesson. It does not matter one straw what the figure *looks* like—(though for that matter barring the head it is equally unlike every species of the genus)—where a description is full and explicit, we must go by that.

I may notice, when dealing with this species, that Mr. Elliot says of *castanea* (*Duvaucelii*, Tem. *apud ille*) "The male has the head dark green, with the upper part *chestnut*. A long occipital crest formed of *chestnut* and dark green feathers." For chestnut, read dingy fawn, or pale dull yellowish brown. Of course Wolf's plate gives the colour correctly.

It appears to me a great drawback in the monograph of the Phasianidæ, that it contains no such diagnostical table as would enable any one to determine at once any particular species. Even in the case of species so closely allied, as *macrolophus* and *castanea*, Mr. Elliot (and I must add Mr. Gould also who is just as bad in this respect,) carefully abstains from any such clear and specific enunciation of differences as might definitely fix the two species.

This was exactly the case with *Phasianus Shawi* and *insignis*, between which outsiders have as yet been able to discover no real difference, and I am by no means sure that I shall not soon be in a position to prove much the same in regard to *macrolopha*, *castanea* and *nipalensis*, different as the typical forms of the two first look.

WAS THERE no one at the Zoological Society, to suggest to the Editor, when he published, P. Z. S., 1876, 310, a lovely plate of a falcon, that the correct name of the species he was figuring might perhaps be *Falco barbarus*, and not *F. babylonicus*?

I confess that I have never seen a *barbarus* exactly in the plumage figured, about the head, but still less has one ever seen any such *babylonicus* and of these we have now seen plenty; but the dimensions W. 10·7, fix the species.

The smallest wing of *babylonicus* and that was a young male, that I have ever met with, measured 11·87.

As for Mr. Anderson who has led the P. Z. S. thus astray, I blush for him, he who is teaching all us poor *ignorami* all about the Raptores! why did he not turn to S. F., I, 21, where he would have found the dimensions of a male *barbarus* killed in Cutch precisely agreeing with those given by him?

CAPT. BUTLER writes: "Captain Bishop informs me that in January 1873, whilst shooting near Bagdad in Turkish Mesopotamia, his party bagged five Woodcocks (*Scolopax rusticola, Lin.*) in the date groves skirting the town. There is no doubt whatever about the species as he showed me the tail and wing feathers. Mr. James, C.S., in a letter just received, also mentions three Woodcocks (one shot and two others flushed) as having been met with in the North Canara Jungles."

WITH REFERENCE to what I said at page 94, about the possible identity of *Cisticola Tytleri* and *melanocephala*, and the occurrence of both in Dacca, I should have noticed that *Tytleri* also occurs (as well as *melanocephala*) in Munipur, where Godwin-Austen obtained a specimen, which he compared with the type in the Indian Museum. *He* considers it "a very distinct species, with very pale ochre, head and breast, and tail black both above and below," *vide* J. A. S. B., XLV., Pt. II, 199, 1876.

STRAY FEATHERS.

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Notes on the Nidification of some Burmese Birds.

By Eugene W. Oates, C.E.

I have long been in the habit of keeping notes of the nests I have found in the course of my wanderings in Pegu, and the present seems a fitting moment to present some of them to the readers of "Stray Feathers," inasmuch as Captain G. F. L. Marshall has not included Burmah in his recent small work on nesting of Indian birds.

The present list contains information relative to the breeding of 96 species. In those cases where full particulars as to the breeding is contained in Mr. Hume's "Nests and Eggs," I have merely recorded the dates on which nests were found, and have given a reference to that work.*

The jungles of Burmah are so vast, and my spare time so limited, that I cannot hope to find the nests of many more species than are here recorded.

The numbers in brackets, following the name of the authority, are those of Dr. Jerdon's work and of Mr. Hume's catalogue.

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* To each species that has been fairly satisfactorily dealt with in Nests and Eggs, I have added a reference to this latter.

In the case of all other species, of which I have, since the publication of "Nests and Eggs," received eggs and particulars as to nidification from other persons *prior* to this paper of Mr. Oates', I have appended to his remarks the notes furnished by these prior contributors.

There still remain no less than 17 species as subnoted, of which this valuable paper of Mr. Oates' conveys to me the first information in regard to their nidification, and I have to thank him, not only for this, but also for specimens of the eggs of most of these species, and several other rare ones.

Coracias affinis.
Alcedo meningting.
Palæornis nipalensis.
Centropus intermedius.
Chalcoparia phœnicotis.
Arachnecthra flammaxillaris.
Buchanga intermedia.
Trichastoma Abbotti.
Garrulax Belangeri.
Ixos Blanfordi.
Prinia Beavani.
Corvus insolens.
Crypsirhina varians.
Estrelda burmanica.
Munia subundulata (or ? M. superstriata.)
Crocopus viridifrons.
Graculus carbo.

Ed S. F.

1.—Pseudogyps bengalensis, *Gm.* (5).

December 5th—All nests searched on this date contained one young bird each. Nests placed in high Peepul trees near the top. Breeds abundantly in Lower Pegu. (Nests and Eggs., p. 7.)

2.—Haliætus leucoryphus, *Pall.* (42).

Eggs may be procured here from the 28th November to 29th December. When the eggs are taken, the female lays again in the same nest. Eggs always three. I have robbed one nest for four consecutive years (in one year twice), and nothing will induce the birds to desert the nest. Abundant in Lower Pegu. (Nests and Eggs, p. 45.)

3.—Butastur liventer, *Temm.* (48 *ter.*)

March 11th.—Nest with two eggs; more would probably have been laid. The nest was in a mangoe orchard in a small tree about 20 feet from the ground. It was composed of small sticks and had no defined shape. Egg lining green; shell pale greenish white without gloss. Size of eggs 1·81 by 1·45 and 1·86 by 1·47. (Nests and Eggs, p. 50.)

4.—Haliastur indus, *Bodd.* (55.)

Takes a long time to build its nest. My first eggs were taken on the 18th February. (Nests and Eggs, p. 51.)

5.—Milvus affinis, *Gould.* (56 *ter.*)

Nests commonly throughout all Pegu. Usually three eggs. From 3rd week in January to end of March. The nest answers well to Mr. Hume's description of that of *govinda*. Average of 12 eggs, 2·09 × 1·63; in length they vary from 2·2 to 2·0, and in breadth from 1·75 to 1·55; the egg lining is bright green; the shell tolerably smooth and glossless; ground color dull white, and all the eggs I have are marked and blotched with rust color, bright in the majority, but pale in a few. The marks are reduced to mere specks in one or two eggs.

6.—Strix flammea,* *L.* (60.)

January 18th.—Six young birds, varying much in age, were brought to me. They were found in a hole in the ground. *11th*

* In this and in other cases the nomenclature is Mr. Oates'. I utterly dissent from Mr. Sharpe's view of the specific identity of all the Barn Owls (nearly) of the world. I should therefore call this species *S. javanica*, Gm.

Similarly I should call Mr. Oates' *Chalcoparia phœnicotis*, *Anthreptes singalensis*, and even if according to one school the name *singalensis* be rejected on account of the species not occurring in Ceylon, a rule that I am not as yet prepared to adopt even then Shaw's name *rectirostris* should probably be adopted.

January.—Five eggs in a large hole in a Peepul tree. I took a sixth, perfect egg from the oviduct of the female. (Nests and Eggs, p. 59.)

7.—Merops viridis, *L.* (117.)

Latter end of April and commencement of May. (Nests and Eggs, p. 99.)

8.—Merops philippinus, *Lin.* (118.)

On the 25th April I dug out some dozens of nests in the Sittang river, all containing eggs in various stages of incubation. (Nests and Eggs, p. 101.)

9.—Coracias affinis, *McClell.* (124.)

Upper Pegu. Young in nest on 21st May.

10.—Halcyon smyrnensis, *L.* (129.)

April 15th.—Nest with five eggs.

June 3rd.—Nest with three young birds and one addled egg. Breeds in thickly wooded ravines. (Nests and Eggs, p. 105.)

11.—Alcedo meningting, *Horsf.* (135 *bis.*)

July 2nd.—Nest in the steep bank of a ravine in thick forest. Gallery about one and a half feet long, terminating in a small chamber. Eggs four, laid on the bare soil; very glossy and round, white; size ·78 by ·69; ·76 by ·7; ·75 by ·7; and ·8 by ·68. *July 14th.*—Nest with nearly full grown young in similar situation. This bird is common in Lower Pegu as also *bengalensis.*

12.—Ceryle rudis, *Lin.* (136.)

In Lower Pegu eggs may be taken during the latter half of October and first half of November. Eggs generally five. (Nests and Eggs, p. 109.)

13.—Palæornis magnirostris,* *Ball.* (147 *bis.*)

I procured three hard set eggs on the 25th February out of a hole of a large Cotton tree about 25 feet from the ground; color pure white, much soiled with incubation and with very little gloss. Dimensions of these 3 eggs :—1·4, 1·35, 1·37 by 1·03, 1·01 and 1·03 respectively. Lower Pegu.

There are several other names in which I do not concur; he may very likely be right: all I wish understood is that he and not the Editor is answerable in this particular case for the nomenclature.—Ed., S. F.

* It seems doubtful whether Pegu birds are not nearer *P. nipalensis*, Hodgson than *magnirostris*, Ball.—Ed. S. F.

14.—Palæornis torquatus, *Bodd* (148.)

Breeds commonly throughout Pegu. I have procured eggs, from 28th January to 25th February. On the latter date, however the eggs were nearly hatched. (Nests and Eggs, p. 116.)

15.—Xantholæma hæmacephala, *Müll* (197)

One nest with young birds on the 14th April near Sittang. (Nests and Eggs, p. 131.)

16.—Rhopodytes tristis, *Less.* (215.)

June 11*th.*—Nest seven feet from the ground in the fork of a leafy shrub. A mere platform of dead twigs lined with leaves, very loosely laid. The whole structure meagre and incoherent, measuring 10 inches by 6 and a few inches thick. It contained one fresh egg, very chalky and with little gloss; color pure white. The egg measured 1·27 by 1·0; Pegu.

September 10*th.*—Nest in a bamboo bush about 20 feet from the ground, of very irregular shape and unmeasurable. Composed of much the same materials as the nest described above. Two eggs, nearly ready to hatch off. Color originally white, but now much stained with yellowish smears. Very little gloss and extremely fragile. The two eggs measured 1·4 by 1·05 and 1·33 by 1·05; Pegu.

June 20*th.*—Nest with two incubated eggs.

June 21*st.*—Nest with two fresh eggs.

The position of these was much the same as above described, *viz.*, in bamboo trees.

[Mr. Davison was, I believe, the first to obtain an egg of this species which he extracted from the oviduct of a female killed at Meeta Myo, Tavoy District, Tenasserim, on the 20th April 1874.

The egg is almost cylindrical in shape, excessively obtuse at both ends, and very little curved on the sides. The shell is rather chalky, and though tolerably smooth and soft to the touch is entirely devoid of gloss. The color is pure white, and the egg measures 1·36 in length by 1·05 in width.

In 1875 both Mr. Cripps in Sylhet and Mr. Gammie in Sikhim found nests and took the eggs.

The following is Mr. Cripps' account:—

"Sylhet, 12*th May* 1875.—A female was shot off the nest; this was placed on a small tree (about 4 feet off the ground on top of a teelah in amongst tea bushes, although heavy jungle was alongside) in a fork where several branches originated and was a very slight structure, carelessly made, consisting of twigs over which a layer of green leaves had been placed. These were dry, though when I got them. The nest was more a

scaffolding than anything else; the chicks were half formed; the egg-shells have been considerably soiled from the bird's droppings. On the 18th May another nest was found; this time in heavy tree jungle, about 12 feet off the ground; the nest was the same as the foregoing, and contained only one fresh egg. During the breeding season this bird's call, a low sweet hoot, is heard every now and then.

"On the 30th June 1875 a female, with three eggs, was brought to me with the nest, which was placed in the fork of a small tree (about 15 feet high,) where three branches met and some 6 feet off the ground. A number of the small living twigs had been bent down, and over these were placed a layer of twigs overlaid with a layer, 1½ inch thick, of leaves which had been plucked green. There was hardly any egg cavity perceptible; the eggs were partly incubated."

From Sikhim Mr. Gammie writes:—

"On the 10th May a native brought me a nest containing three partially-incubated eggs, and a female of this species which he said he had caught on it. The nest, he said, was placed in the middle of a large bamboo bush, on the branchlets, within eight feet off the ground. The man declared that he had brought me the whole of the nest, but I do not feel sure about this; of what he brought, the egg cavity was little better than a mere depression, about 4 inches in diameter, and gradually deepening inwardly to about 1·25 inches in the centre. The body of the nest was a collection of twigs about the thickness of a goose quill. On the top of the twigs came a quantity of green tree leaves and dry bamboo leaves; then a neat lining of quite green leafy twigs for the eggs to rest on. It was taken at Mongphoo at 3,000 feet elevation."

The eggs obtained by Mr. Gammie, in Sikhim, Mr. Cripps, in Sylhet, and Mr. Davison, in Tavoy, are quite of the *Centropus* and *Taccocua* type. Long cylindrical eggs, obtuse at both ends, often not unlike in shape some of our turtle's eggs; in color dead glossless white, with larger or smaller portions of the surface covered with dirty yellowish brown, more or less glazy, stains.

Five eggs vary from 1·33 to 1·37 in length, and from 0·98 to 1·05 in width.—A. O. H.]

17.—Centropus intermedius, *Hume*. (217 *sex.*)

August 24th.—Nest four feet from the ground in thick elephant grass, to several stalks of which the nest was attached. A domed structure 18 inches in height and 14 outside diameter. The bottom, 4 inches thick and the walls and roof very strong but thin, and allowing everywhere of the fingers being inserted.

Composed entirely of the leaves of elephant grass, the living heads of the supporting stalks being bent down and incorporated with the structure to form the roof. Entrance oval, about 6 by 4, with its lower edge about 2 inches above the egg chamber. Two eggs quite fresh, but the female incubating. Color pure white, the shell very chalky and with very little gloss. Eggs measured 1·4 by 1·18 and 1·36 by 1·15.

July 15th.—Nest in small bush jungle in the centre of a dense shrub, 10 feet from the ground. Contained two young birds about a week old, covered with porcupine-like quills and smelling most atrociously. Nest made of dead leaves and grass, massive and cylindrical, about a foot long and 9 inches outside diameter.

August 26th.—Nest with three eggs, fresh, built near the top of a tree about 20 feet from the ground. One of the eggs had blood vessels in the inner lining, shewing that it had been slightly incubated, whereas the other two were quite fresh. Dimensions: 1·4, 1·42, 1·4 in length by 1·15, 1·12, 1.13, respectively, in breadth.

The above three nests were found near Pegu.

18.—Centropus bengalensis, *Gm.* (218.)

Breeds commonly in Lower Pegu throughout August. The nest is placed about two feet from the ground in rank grass, chiefly between paddy fields on the bunds. It is shaped like an egg, about 10 inches high and 8 inches diameter. The entrance 5 by 4 is placed midway between the top and bottom. It is composed of elephant grass, and the surrounding grasses are bent down and incorporated with the structure. The egg chamber and sides are neatly lined with thatch grass. The walls are everywhere about 1 inch thick. In one nest there was a distinct vertical slit at the back, but I failed to notice it in others.

The number of eggs is either two or three, and I have found both numbers well incubated. Egg shell very chalky, but smooth to the touch and fairly glossy; colour white. Average of eight eggs, 1·17 by 1·01; and the extreme dimensions are 1·18 to 1·12 in length and 1·08 to ·94 in breadth.

[From Sikhim Mr. Gammie wrote in 1875:—

"I have only found the nest of this Coucal up to 3,500 feet, but have occasionally seen it during the breeding season as high as 5,000 feet, so that it probably breeds up to that elevation. It affects dense grassy jungle, and fixes its nest, two or three feet from the ground, in the middle of a large Saccharum or other grass plant, by bending over a few of the stems to make a resting place for it. It is composed of pieces of long

dry grass and bamboo leaves, put rather loosely together, and surrounded by the ends of the bent stems which are twisted right over it and partly worked in with the dry material. In shape it is a roundish oval, measuring externally about 10 inches in height by 8 inches in width. The cavity is 4 to 5 inches in diameter, and is lined with a few green leaves. The entrance which is at the side is 3 inches in diameter.

"The usual number of eggs is three, and the breeding months May and June."

The eggs obtained by Mr. Gammie are broad ovals, obtuse at both ends. White with a faint gloss, and a good deal stained here and there with dirty brownish yellow. They measured 1·15 and 1·24 in length, and 0·96 and 0·99 in breadth.—A. O. H.]

19.—Chalcoparia phœnicotis, *Tem.* (233 *bis.*)

This Sunbird appears to nidificate from the middle of May to about the end of July. On the 3rd June I found a nest with two eggs nearly hatched. It was suspended from a branch of a Mangoe tree about 20 feet from the ground and well surrounded by leaves. On the 25th June another nest was found from which the young had apparently just flown. It was about 8 feet from the ground. On July 6th a nest with two nearly fresh eggs was discovered hanging on a shrub about 4 feet high and on the 8th of the same month another quite completed, but with no eggs. It was attached to the extreme tip of a bamboo about 25 feet from the ground.

The eggs appear to be always two in number. Three eggs measure ·66, ·64, and ·63 in length by ·46, ·43 and ·44 in breadth, respectively. They have little or no gloss. The ground colour is pinkish white and the whole shell is thickly streaked and otherwise marked with brown, in which a purplish tinge is distinctly visible. The marks are very evenly distributed, but round the thicker end they tend to coalesce and form a more or less distinct ring. Very little of the ground colour is visible.

The nest is a very lovely structure, closely resembling that of *Ploceus baya* in shape, with the tube cut off at the level of the bottom of the nest. At a short distance off, it looks like a mass of hair combings. Three nests are composed throughout of black hair-like fibres very closely woven. With these are intermingled numerous small cocoons, pieces of bark, a few twigs here and there and large lumps of the *excreta* of caterpillars. The interior is sparingly lined with fine grass. A fourth nest was made almost entirely of strips of grass, a very small quantity only of black fibres being

used. Some huge pieces of bark, nearly as large as the bird itself, were suspended by cobwebs from the lower part of the nest.

The nest is pear-shaped, about 6 inches in height, and barely 3 inches outside diameter at the thickest part. The upper 2 inches are solid. The entrance is about half way down and measures 1½ by 1. The bottom of the egg chamber is about one inch below the tip of the entrance, and the thickness of the walls everywhere is about one-third of an inch. The wonderful part of the nest is the verandah or portico. This springs from the upper edge of the entrance and extends to two or three inches below the bottom of the nest. Laterally it extends to rather more than the width of the nest, and the sides are incorporated with the main structure all the way down. It is made of the same materials as the other portions, is about a quarter of an inch thick, and very strongly woven and elastic.

20.—Arachnechthra flammaxillaris, *Bl.* (234 *ter.*)

I have found the nest of this bird from the commencement of July to the end of August. On the 3rd of the former month I observed a female of this species attaching a piece of grass to a twig. On the 8th the nest looked quite finished, and on the 14th I took two eggs from it. Another nest also with two eggs was found on the same day, and subsequently, during July and August, other nests were found by me.

Two appear to be invariably the number of eggs laid. They have little or no gloss; the ground colour is pale greenish white, and this is nearly all covered with dashes of greyish ash which run one into the other at the thick end and form a cap. In addition, the egg is sparingly marked with fine, round spots of dark brownish black running at the edges like inkspots on blotting paper.

All the nests I have met with have been placed in secondary jungle, on shrubs and bamboos, seldom more than four-feet, occasionally only two, and in one instance about six feet from the ground.

The nest is generally pear-shaped, the upper part tapering up to the point of attachment. Occasionally the shape is more that of a long cylinder. The total length varies from 6 to 8 inches and it is 3 in its widest part. The entrance 1½ by 1 is centrally situated and is overhung by a rude porch, an inch wide and about 1½ long. The walls are half an inch thick, but at the base fully an inch.

The materials are chiefly fine grasses mixed up with scraps of dead leaves, moss bark and cobwebs. The interior is entirely of very fine grass, and the egg chamber has usually a few

feathers in it. Pieces of bark are suspended from the nest by obwebs, occasionally extending a foot down.

21.—Upupa longirostris, *Jerdon.* (254 *bis.*)

April 14*th.*—Young ones in a hole of a large forest tree about 15 feet from the ground.

22.—Buchanga intermedia, *Bl.* (280 *A*)

I found one nest on the 27th April on a small sapling near the summit; it contained four eggs. They are without gloss. The ground color in all is white. In three eggs the whole shell is marked with spots of pale purple. These are perhaps more numerous at the thick end, but not conspicuously so. The fourth egg is blotched, not spotted, with the same colour.

The nest is composed of fine twigs and the dry branches of weeds. It is lined very firmly and neatly with grass. Exterior diameter 5 inches and depth 2. Egg chamber, 3½ across and 1¼ deep. The outside of the nest is profusely covered with lichens and cobwebs. The eggs measure from ·95 to ·83 in length, and ·71 to ·68 in width.

23.—Hypothymys azurea, *Bodd.* (290.)

May 28*th.*—Nest with three eggs slightly incubated. (N. & E., p. 198.)

24.—Pitta moluccensis, *Müll.* (345 *bis.*)

June 27*th.*—Nest placed on the ground in thick forest on a hill side in a small patch of thatch grass, but in no way concealed from view. Oven shaped, about 10 long, 8 broad, and and 6 high, with a 3-inch circular hole at one end; side of nest everywhere rather more than one inch thick, composed of large dead leaves and roots all matted together with earth. On the exterior there are some large sticks and twigs.. Eggs five, (female sitting very closely, although the eggs were fresh,) highly glossy, white, beautifully marbled with marks of inky purple and lines or scrawls, with a few dots of reddish purple. The whole shell is very thickly covered with these marks, more so at the thick end than elsewhere. Size 1·15, 1·12, 1·08, 1·10, 1·10, by ·88, ·87, ·88, ·88, ·87, respectively.

On the same day three other nests were found presumably of this species. From the remains of egg-shells near one, it was evident that the young had flown. The other two appeared to be new; one was placed on the side of a nullah on the root of a tree and the other on a tree trunk where the tree separated into three branches about two feet from the ground.

[The Blue-Winged Ground Thrush occurs and breeds throughout British Burmah, from Tonghoo to the Pag-chan Estuary, and from the coast of Arracan to the Kareenee, keeping as a rule, however, in the thin tree jungle that everywhere skirts the bases of the innumerable larger and smaller hill ranges that intersect the Province. It is not as a rule, I believe, a permanent resident, but suddenly makes its appearance between the early part of April and the end of May, arriving earlier at Tavoy for instance and later at Thyetmyo. It comes and goes in a very strange manner. One day thousands are to be seen, the next not a bird is to be found, but when the monsoon commences they settle down here and there and breed, laying five or six eggs, and by the cold season have all, or mostly all, retreated further south. *Coronatus* similarly moves in multitudes up northwards in India, about the setting in of the S.-W. Monsoon.

Davison was, I believe, the first to take the eggs of this species. Writing from Amherst, in 1875, he remarks:

"On the 15th July I found a nest of this Ground Thrush containing six very much incubated eggs, (shooting the bird as she flew from her nest). This nest also, like that of *P. cuculata* was placed on the ground at the root of a small tree; but it was built in much thinner jungle, only about 3 or 4 yards from a footpath, and was quite exposed to view; it was conspicuously smaller and much less roughly put together, though composed of exactly the same materials (to wit, dry twigs and leaves and lined with fibres) as the nest of *P. cuculata*, but the roof sides, as well as foundation, were much thinner, and it wanted the conspicuous platform in front of the entrance hole of the nest of that species—the entrance in this present nest being almost on a level with the ground. It measured 8 inches in diameter, 5·5 in height, the entrance 3·5 in diameter; the egg cavity 5·5 wide interiorly (and 3·5 high.)

"These Ground Thrushes apparently sit very close, as in both this case, and in that of *P. cuculata* I walked to within a couple of feet of the nests before the birds left them."

The eggs are in some respects of the regular *Pitta* type, very round ovals, glossy, and with a white ground, but they are far more thickly marked and richly colored than those of any of our other Ground Thrushes with which I am acquainted. The markings consist of rather small, generally irregular, often angular blotches, spots, streaks, smudges, and lines, thickly set, and to judge from the series before me, pretty uniformly distributed over the whole surface of the egg. They are of two colours—maroon red, and deep inky purple, black, or very nearly so, in many spots.

The eggs vary from 1 to 1·04 in length, and from 0·85 to 0·9 in breadth.—A. O. H.]

25.—Geocichla citrina, *Lath.* (355.)

May 22nd.—Nest in a shrub in a ravine near Pegu, about four feet from the ground, made of roots and strips of soft bark, the ends of some of the latter hanging down a foot or more. The interior lined with moss and fern roots. Interior and exterior diameters 4 and 5 inches respectively. Inside depth about 2, and bottom of nest about 1 inch thick. Contained 3 eggs quite fresh, measuring 1·04, 1·0, and 1·06 by ·75, 76 and 79, respectively. A fourth egg found on the ground near the nest was 1·03 by ·78.

Another nest with 3 eggs was found on the 10th June. (N. & E., p. 229.)

26.—Pyctorhis sinensis, *Gm.* (385.)

Breeds abundantly throughout Pegu during June. The eggs I have were taken towards the end of the month. (N. & E., p. 237.)

27.—Trichastoma Abbotti, *Blyth.* (387.)

May 22nd.—Nest with two eggs nearly hatched, and on 23rd of same month another with two eggs, one of which was fresh and the other incubated. This bird frequents thick undergrowth, and the nest is built at a height of about two feet from the ground. I have found very many of their nests, but, with the above exceptions, the young had flown. It is generally attached to a stout weed or two and consists of two portions. First a platform of dead leaves about 6 inches diameter and one deep, placed loosely, and on this the nest proper is placed. This consists of a small cup, the interior diameter of which is 2 inches, and depth 1½. It is formed entirely of fine black fern roots well woven together and is not incorporated with the platform on which it lies. Stout weeds appear favourite sites, but I have found old nests in dwarf palm trees at the junction of the frond with the trunk, and in one instance I found an old nest on the ground, undoubtedly belonging to this bird. Out of four eggs three measured ·84 by ·66, ·82 by ·67 and ·87 by ·65. They are very glossy and smooth. The ground color is a pale pinkish white. At the cap there are a few spots and short lines of of inky purple sunk into the shell and over the whole egg, very sparingly distributed, there are spots and irregular fine scrawls of reddish brown. A few of the marks are neither spots nor scrawls, but something like knots. The cap is suffused with a darker tinge of pink than are the other parts of the shell.

A third nest found on the 10th June, contained 3 eggs, and differed from those above described in being very massive. It was composed of dead leaves and fern roots and measured about 5 inches in exterior diameter with the egg cup about 2½ inches broad and 2 inches deep. It was placed on some entangled small plants about 2 feet from the ground. Of these eggs I noted that before being blown the shell was of a ruddy salmon color. The marks are much as in the others described above.

28.—Stachyrhis nigriceps, *Hodgs.* (391.)

See "Nests and Eggs," p. 242.

29.—Mixornis rubricapilla, *Tick.* (395.)

I found a nest on the 2nd June near Pegu with 3 eggs. Failing to snare the bird at once, I left the nest for a short time and on my return found the eggs gone. I am satisfied, however, that the nest belonged to the present species; for I caught a glimpse of the sitting bird. The nest was built on the top of a stump, well concealed by leafy twigs, except the entrance, which was open to view. It was a ball of grass with the opening at the side.

28*th June*.—Nest in a shrub about 10 feet from the ground. A domed structure with an opening at the side 3 high by 2 broad. Height of nest about 6 and outside width 4. Made entirely of bamboo leaves and lined sparingly with grass. Eggs 3, white, with hardly any gloss, sparingly spotted with bright reddish brown chiefly at the large end where they form a cap. They measure ·68, ·65, ·66, by ·51, ·52, ·52, respectively.

I have found numerous nests of this species, but always after the young had flown. They appear almost always to be placed in shrubs at heights of 2 to 10 feet from the ground. One nest, however, on which I watched the birds at work, was in a pineapple plant between the stalk of the fruit and one of the leaves, almost on the ground. (N. & E., p. 245.)

30.—Timalia pileata, *Horsf.* (396 *bis* ?)

The nest is placed in the fork of a shrub, very near to, or quite on, the ground, and is surrounded in every case by long grass. A nest found on the 4th July, on which the female was sitting closely, contained three eggs slightly incubated. The breeding season seems to be in June and July.

The nest is made entirely of bamboo leaves and is lined sparingly with fine grass. No other material enters into its composition. It is oval, about 7 inches in height and fou

diameter, with a large entrance at the side, its lower edge being about the middle of the nest.

When the bird frequents elephant grass, where there are no shrubs, it builds on the ground at the edge of a clump of grass, and I have found two nests in such a situation, only a few feet from each other.

In looking for the nest a good deal of grass, is necessarily trodden down; the consequence is that if you do not find eggs, there is little chance of their being laid later on. I have found some ten nests, more or less completed, but only three eggs.

These measure ·72 by ·57. The ground color is white, and it is thickly speckled with umber brown and sparingly with purplish brown and blackish brown. The spots are small and run one into the other in places. They are more thickly placed at the large end, but are everywhere numerous. The eggs are tolerably glossy.

[I was, I believe, myself the first to obtain the eggs of this species, but the first of my contributors who sent me eggs, nest, and a note on the nidification of this species, was Mr. J. C. Parker. Writing to me in September 1875 he said:

"On the 14th August I took a nest of *Timalia pileata* on my old ground in the Salt Lakes. I discovered this by a mere accident, for I happened to see a female *Prinia flaviventris* (whose eggs I was in quest of for you) perched on the top of a bush inland about 10 feet from the bank of the canal, and from her movements I thought she must have a nest near at hand.

"Accordingly I landed, although not in trim for wading through a bog. Sure enough I was not mistaken; the *Prinia* had a nest, but it contained only *one* egg. Close by, however, I saw a nest, from out of which a bird flew, and although I did not shoot it I am quite sure it was *Timalia pileata*. The jungle was particularly thick just about where I stood, indeed impenetrable, and I could not follow the bird, but I soon heard the male bird talking to his mate in that extraordinary way which these birds have, and which once heard cannot be mistaken.

"The nest was placed on the spikes growing from the joints of a species of grass very thick and stiff, and forming a secure foundation for the nest. This latter is 6 inches high and 4 inches broad. Egg cavity 2 inches, entrance hole 1½ by 2. The nest itself is very loosely put together with the dead leaves of the tiger grass twisted round and round, and lined roughly with coarse grass. The nest was quite open to view and about three feet from the ground. I suppose the birds never expected that such a wild swampy spot as they had selected would be invaded by any oologist.

"The eggs are quite miniatures of those of *Megalurus palustris*, being covered all over with minute spots of a purplish black color. They were three in number and quite fresh. They measured 0·7, 0·73, 0·75, in length, and they were all 0·6 breadth."

Other eggs, previously obtained by myself also in the neighbourhood of the Salt Lake, Calcutta, were very similar, rather broad ovals with a tolerably fine gloss. The ground color pure white. The whole of the larger end of the egg pretty thickly speckled and spotted with brown, varying from an olive to a burnt sienna intermingled with little spots and clouds of pale inky purple, and similar spots and specks chiefly of the former color, but smaller in size, scattered thinly over the rest of the egg. The eggs varied from 0·69 to 0·75 in length, and from 0·55 to 0·6 in breadth.—A. O. H.]

31.—Pellorneum minor, *Hume.* (399 *sextus.*)

This is the *Pellorneum* with the rufous head and brown back. The other species which occurs, according to my experience, only in the evergreen forests of the Pegu hills, which has the head and back of one uniform brown, I identify with *Tickellii*; neither of them is *ruficeps*, and yet Major Godwin-Austen quite recently, when reviewing these birds, although expressing his conviction that *ruficeps* does not occur out of Southern India, gives only one species from Burmah. What then is the other species I have? It agrees exactly with Blyth's description of *Tickellii*. That it has not been found again in Tenasserim by Mr. Davison is no argument against its existence, nor is it at all wonderful that I should have refound the bird in Pegu. Then again as to the bird in the Indian Museum being *thought* to be the type of *Tickellii;* unless the skin bears a label stating it to have been the type, all surmises on the subject are mischievous. It seems to be quite forgotten that Mr. Blyth himself received two species from Burmah. The fact is that all along Mr. Blyth took the bird which Mr. Hume has named *minor* to be nothing but *ruficeps* and under that impression sent Mr. Swinhoe a duplicate. This latter gentleman saw its distinctness and named the bird *subochraceum*. How else could Mr. Blyth record *ruficeps* from Arrakan and Tenasserim?

But to return to our nests.

On the 3rd May I found a nest on the ground near Pegu. A good many bamboo leaves had fallen and the nest was imbedded in these. It was formed entirely of these leaves loosely put together, the interior only being sparingly lined with fine grass. The structure *in situ* is tolerably firm, but it will not stand removal. In height it was about 7 inches, and in breadth about 5, the longer axis being vertical. Shape cylindrical

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with rounded top. Entrance 2½ by 1½ placed about the centre. The interior of the nest is a rough sphere of 4 inches diameter.

There were three eggs slightly incubated. The ground color is pure white and the whole surface is minutely and thickly speckled with reddish brown and greyish purple spots, more closely placed at the thick end where they coalesce in places and form bold patches.

Dimensions of 3 eggs ·82, ·81, ·83, by ·6, ·6, and ·61, respectively.

On the 29th June, another nest of similar construction and placed on the ground in thick forest, at the root of a shrub. Eggs 3, ·79, ·8, ·78, by ·61, ·6, and ·58, respectively; only slightly glossy.

[Davison was, I think, the first by a month or so to obtain a nest of this species. In 1875 he gave me the following note :—

"On the morning of the 25th March I took at Bankasoon a nest of this species in thick forest; it was placed on the ground and was composed externally of dead leaves, with a scanty lining of fine roots and fibres. It measured externally about 5 inches high, by about 4 wide. The egg cavity was hardly 3 inches in diameter. The nest was only partially domed, and was very loosely and carelessly put together."

The nest contained three eggs, but these were so far incubated that it was impossible to blow two of them. They measured respectively 0·85, 0·82, and 0·80, in length, by 0·65, 0·62, and 0·60, in breadth."

The single egg of this species obtained by Mr. Davison is in shape a moderately broad oval, a little pointed towards the small end; the shell is fine but has little gloss. The ground color, so far as this is visible through the thickly-set markings, is white, and it is very finely but densely stippled and freckled (most densely at the large end where the markings are confluent or nearly so) with dull brown, here and there, specially about the large end; faint grey specks and spots may be traced underlying as it were the brown markings.

This egg measures 0·82 by 0·62.

The egg sent me from Pegu by Mr. Oates is of precisely the same size and type, but the markings are much less dense and are brighter colored. The ground color is white, and the egg is pretty thickly speckled with a reddish chocolate brown. Here and there a moderately large irregularly-shaped spot is intermingled with the finer specklings. The markings are rather most dense at the large end where there is a tendency to form a zone, and here a number of pale purplish grey streaks and specks are also intermingled.—A. O. H.]

32.—Garrulax Belangeri, *Less.* (407 *bis.*)

Nest, in a bush a few feet from the ground, on the 8th June near Pegu. In shape hemispherical, the foundation being of small branches and leaves of the bamboo and the interior and sides of small branches of the coarser weeds and fine twigs. The latter form the egg chamber lining and are nicely curved. Exterior and interior diameters respectively 7 and 3½ inches. Total depth 3½ and interior depth 2 inches. Three eggs, pure white, and highly glossy, and they measure 1·14 by ·87, 1·1 by ·88 and 1·03 by ·86. These three particular eggs are covered with minute pimples all over.

33.—Garrulax pectoralis, *Gould.* (412.)

Though I am very careful in authenticating my eggs, yet I have doubts whether I may not have made a mistake confusing this bird with the next. I shall however let my note in Nests and Eggs stand. (N. & E., p. 256.)

34.—Garrulax moniliger, *Hodg.* (413.)

In Lower Pegu chiefly in July. Average of six eggs, 1·16 by ·88; color, very glossy, deep blue. Nest placed in forks of saplings within reach of the hand, massive, cup-shaped and made of dead leaves and small branches; lined with fine twigs. Outside diameter 7 inches and depth 4. Interior 4½ by 2. (N. & E., p. 257.)

35.—Chatarrhœa Earlii, *Bl.* (439.)

See "Nests and Eggs," p. 275.

36.—Megalurus palustris, *Horsf.* (440.)

May seems to be the month in which these birds lay here. The nest is commonly placed on the ground under the shelter of some grass tuft. (N. & E., p. 276.)

37.—Ixos Blanfordi, *Jerdon.* (452 *quat.*)

Nest in a small tree, well concealed by leaves, about 7 feet from the ground near Pegu. A very neat cup measuring 3 inches diameter externally, and 2¼ internally. The depth 1¾ inches outside and 1¼ inside. The sides of the nest, though very strongly woven, can be seen through. The materials consist of small fine branchlets of weeds, and the inside is neatly lined with grass. One or two dead leaves, or rather fragments, are used in the exterior walling.

The nest was found on the 25th May, and contained three eggs slightly incubated. The ground colour is a fresh pink,

but with little gloss. The whole egg is covered with a profusion of dark purplish red spots, more thickly disposed at the thick end, but everywhere frequent. In addition there are some underlying and much paler smears. The three eggs measured respectively, ·75, ·78, and ·77 in length, by ·63, ·62, and ·61 in breadth.

Subsequently I found 5 other nests, from the 1st April to the 20th June, all similar to the one described. Eggs invariably 3. Average size of 12 eggs ·82 by ·6.

38.—Otocompsa emeria, *Lin.* (460.)

This bird breeds as early as February, on the 27th of which month I procured a nest with two eggs nearly hatched. It stops nesting, I think, at the beginning of the rains. (N. & E,. p. 287.)

39.—Pycnonotus pygæus, *Hodgs.* (461.)

Breeds abundantly from May to September, and has no particular preference for any one month. (N. & E., p. 290.)

40.—Pycnonotus intermedius, *Hay.* (461 *bis.*)

I have found only one nest of this species, on the 10th September. The nest was undistinguishable in structure and in materials from those of *pygæus*. There were two fresh eggs; the ground colour pale pink with shell marks of dull purple and thickly splashed, especially at the cap, with bright blood red. They are very glossy. I have eggs of *pygæus*, which match these exactly. (N. & E., p. 291.)

41.—Aegithina typhia, *Lin.* (468.)

Nests are found chiefly in June and July, but the birds probably lay also in May. (N. & E. p. 295.)

42.—Copsychus saularis, *Lin.* (475.)

I have found nests with eggs from the 30th of April to the 20th May. In Burmah they almost invariably select a large hollow bamboo, many of which are generally to be found lying about the verandahs and cucumber framings of the native houses, and place their nest about two feet inside, nearly up to the first joint. They also build in holes of trees. (N. & E., p. 303.)

43.—Cercotrichas macrurus, *Gm.* (476.)

Builds in hollows of trees from 2 to 20 feet from the ground. The nest is a shapeless mass of leaves, sufficient to fill the hole, and lined with fine grass. I have found nests on May 27th and

June 3rd with eggs. The number of eggs appears to be four. They are not unlike some of the eggs of *C. saularis*. Tolerably glossy, ground colour greenish and the whole shell is thickly freckled and streaked with rich brown with a tinge of rufous. The eggs vary in length from ·89 to ·79 in length and from 64 to ·6 in breadth. (N. & E., p. 307.)

44.—Orthotomus sutorius, *G. R. Forst.* (530.)

Appears to nest from the middle of May to the end of August; common throughout Pegu. (N. & E., p. 331.)

45.—Prinia flaviventris, *Deless.* (532.)

I have found the nest in May and July. In shape it is generally oval, being pulled out at the points of attachment. The interior is always profusely lined with grass seeds and down. It is suspended between two or three stems of elephant grass at a short distance from the ground. (N. & E., p. 334.)

46.—Prinia Beavani, *Walden.* (538 *bis.*)

Before describing the nest I may remark that this *Prinia* has *twelve* rectrices and not *ten*, as stated in the original description of the bird (P. Z. S., 1866, p. 551.) The outer pair is so short as to be concealed by the under tail coverts, and thus probably escaped Lord Walden's observation.

June 29th.—Found a nest sewn into a broad soft leaf of a weed in forest about two feet from the ground. The edges of the leaf are drawn together and fastened by white vegetable fibres. The nest is composed entirely of fine grass, no other material entering into its composition. For further security the nest is stitched to the leaves in a few places, the depth of the nest is about three inches and internal diameter all the way down about one and a half. Eggs three, very glossy, pale blue, with specks and dashes of pale reddish brown, chiefly at the larger end, where they form a cap. Size ·58, ·62, ·61, by ·47.

47.—Cisticola schœnicola, *Bonap.* (539.)

The majority of birds begin laying at the commencement of June, and probably nests may be found throughout the rains. I procured a nest on the 2nd of November, a very late date I imagine. It contained four eggs. This latter nest was a neat deep cup, thickly felted within; others, found in the rains, have been huge, circular balls. Perhaps this bird adapts the shape of the nest to the season. The ball-nest is an admirable structure for the monsoon. (N. & E., p. 343.)

48.—Drymoeca extensicauda, *Swinh.* (544 *quat.*)

See STRAY FEATHERS, Vol. III., page 340.

49.—Corvus Vaillantii, *Less.* (660.)

These birds all begin to build about the same time and I have taken numerous nests at the end of January. At the end of February most nests contain young birds. (N. & E., p. 411.)

50.—Corvus insolens, *Hume.* (663 *bis.*)

Nesting operations are commenced about the 20th March. The nest and eggs require no separate description for both appear to be similar to those of *splendens*.

51.—Cissa sinensis, *Bodd.* (673.)

See "Nest and Eggs," page 421, & S. F., V., 85.

52.—Crypsirhina varians, *Lath.* (678 *bis.*)

This bird appears to lay from the 1st of June to the 15th July; most of my nests were taken in the latter month. It selects either one of the outer branches of a very leafy thorny bush, or perhaps more commonly a branch of a bamboo, at heights varying from 5 to 20 feet.

The nest is composed of fine dead twigs firmly woven together. The interior is lined with twisted tendrils of convolvulus and other creepers. The uniformity with which this latter material is used in all nests is remarkable. The inside diameter is 5 inches, and the depth only 1, thus making the structure very flat. The exterior dimensions are not so definite for the twigs and creepers stick out in all directions, but making all allowances, the outside diameter may be put down at 7 or 8 inches and the total depth at 1½ inches.

The eggs are usually three in number, but occasionally only two well incubated eggs may be found. In a nest from which two fresh eggs had been taken, a third was found a few days later.

The eggs measure from 1·0 to ·88 in length, and from ·75 to ·68 in breadth. The average of eleven eggs is ·94 by ·71.

They are much pointed at the small end and have very little gloss. The ground color is greyish white and the whole egg is thickly covered with spots and dashes of ash and yellowish brown, which become confluent at the thick end and almost entirely conceal the ground color. In one egg the spots are much fewer and more distinct.

53.—Sternopastor superciliaris, *Bl.* (683 *bis.*)

See "Nests and Eggs," p. 427.

54.—Acridotheres tristis, L, (684.)

Commences making nest about 15th March. I have taken eggs as late as 17th July, but in this case the previous brood had been destroyed. Normally no eggs are to be found after June. (N. & E., p. 428.)

55.—Acridotheres fuscus, *Wagl.* (686 *part.*)

This bird does not appear to lay till about the 15th April. I have taken the eggs and I have seen numerous nests with young ones of various ages in the middle of May. They breed by preference in holes of trees and occasionally in the high roofs of monastic buildings. (N. & E., p. 431.)

56.—Ploceus philippinus, *L.* (694.)

Soon after the 1st of April nesting operations commence actively. Eggs may be found up to the end of July. (N. & E., p. 436.)

57.—Ploceus manyar, *Horsf.* (695.)

Commences to breed rather later than the preceding bird; in fact it waits till the elephant grass, to which its nest is invariably attached, is high and green, which does not take place till the rains are well in. (N. & E., p. 440.)

58.—Ploceella javanensis, *Less.* (696 *ter.*)

See "Nests and Eggs," p. 442.

A very distinct genus, as every one would allow who had met with the bird.

59.—Munia rubrinigra, *Hodgs.* (698.)

The nests and eggs of this bird may be found at all times from the 15th June to the end of September. Six appears to be the maximum number of eggs laid.

The nest is placed in dense elephant grass, attached to two or three stems at a height of four or five feet from the ground. Preferentially they select very swampy land. The nest is a loose mass of grass, spherical, cylindrical, or heart-shaped. The inside is lined with finer grass, the following ends being brought forward to the entrance which is small and difficult to find. The eggs are without gloss, pure white. They measure from ·69 to ·54 in length, and from ·48 to ·41 in breadth, the average of 16 eggs being ·61 by ·45.

[N. &. E., p. 444.] Since Nests and Eggs were published, I have myself taken several nests in the Calcutta Botanical Gardens, and Mr. J. C. Parker has taken many more in the same place, and has furnished me with numerous notes on the nidification of this species.

He says: "I found a nest of the Chestnut-bellied Munia in the Calcutta Botanical Gardens, on the 27th of July 1874. The nest was fixed, as described by Dr. Jerdon, to the stems of long grass near the top, and was a very conspicuous object easily to be seen a long way off. The bird was on the nest, but the eggs were quite fresh; and though there were only five, it is quite possible that had I waited more would have been laid." Again he writes: "On the 13th July (1875) I took a nest with six eggs, and on the 20th August another with five eggs of *Munia rubronigra* in the Botanical Gardens, Calcutta. This year the birds do not breed in the long grass, probably owing to the fact of there being none to build in—a thorough reform in the garden arrangements having been carried out this year.

"The two nests were placed, one on a species of prickly date palm, the other on another species of palm, about six feet high, an *Oreodoxa* I think.

"I could easily have secured the bird on the first nest, as she allowed me to approach within a few inches of the entrance, but I was prevented from doing so by the number and size of the terrible needle-like thorns that protected the nest on every side, a perfect forest of bayonets." Lastly he says: "I went on Monday, the 29th September 1871, to the gardens, and I was rewarded by another nest and 3 eggs of *Munia rubronigra*. The nest was in a young pine tree forming one of the same avenue (leading to the great Banian) as that from which I took the last batch of 5 eggs. I would not have taken this nest had I known there were only 3 eggs, but as it was placed on the highest fork of the tree, a lad had to get up and bring it down, although the tree was only some 12 feet high."

Davison writing from Mergui, on the 21st June 1875, remarks:

"In a dense tangled mass of swamp grass and screw pine, I found, on the 20th June, a nest of the Black-headed Munia. The nest was most ingeniously woven in with the surrounding grass stems, so as to be entirely concealed, and I should certainly not have found it had I not seen the birds (for there were two of them) fly out.

"The nest is a ball of coarse swamp grass and rush, roughly and loosely woven, measuring about 7 inches in diameter. The entrance, which is at one side, measures 2·5 inches in diameter.

"Most of the material composing the outer portion of the nest is still green; the egg cavity is lined with dry grass, which is finer than that on the outside of the nest.

"Comparing the nest with one of *Munia acuticauda*, Hodgs., there are many differences to be noted. It is somewhat larger than that of the White-backed Munia. More globular; composed, both externally and internally, of coarser material, and notably it wants the projecting neck of fine grass stems, which one almost invariably finds not only in the nest of *M. acuticauda* but also in that of other species of the genus.

"The nest contained two eggs, of course pure white, but more elongated, and conspicuously larger than any of the eggs of *M. acuticauda* that I took the same day.

"This is evidently the second nest of the season, there being numbers of young, about which clearly have not very long left the nest.

"The species appears to be only a seasonal visitant to Mergui, where it goes to breed.

"When I worked in Mergui and its vicinity in November, I met with none of these species, but in May, on my return from the southernmost portion of the Province, I found the bird not uncommon about the swamps and paddy flats in small parties, usually consisting of a couple of adults and three or four young."

A nest, which I took on the 15th August, was a large globular structure, about 8 inches long, 6½ high, and 5 broad, the lower surface flat or nearly so, the upper domed, and with a large oval aperture, some 2¼ inches high and 1½ broad at one end. The nest was composed entirely of grass, rather solidly put together and had no lining. On the external surface, some coarse blades and pieces of flower stems, with the fluffy seeds attatched, had been used, but the greater portion of the nest consisted entirely of moderately fine grass stems; the chamber was about 5½ inches long, nearly 2½ inches wide throughout, and nearly 3½ inches high in its highest central portion.

The eggs are very regular elongated ovals, pure white and glossless, and only vary from 0·58 to 0·68 in length, and from 0·4 to 0·47 in breadth—A. O. H.]

60.—Munia sub-undulata,* *God.-Aust.* (699 *bis.*)

Breeds throughout June, July, and August. Even in September I have seen them carrying grass. In "Nests and Eggs," p. 447, this species is mentioned under the name of *punctulata*. The breeding habits of the two species appear to be absolutely the same and no description of the nest and eggs is necessary.

* This is probably *not* the Assam, but the Burmese form *M. superstriata*, nob., S. F., II., 481, n. 1874.—A. O. H.

The eggs of the present species appear perhaps to average smaller, being about ·65 by ·48.

61.—Estrelda burmaninca, *Hume.* (704 *bis.*)

Commences to make its nest about 15th October. I have taken the eggs on the 2nd November, and subsequently in the same month. The nest is placed near the ground in soft luxuriant grass. It is a spherical mass of grass about 6 inches outside diameter, with an opening at the side. The majority of the structures are lined with feathers, but a few nests are without them.

Six is the maximum number of eggs, four only are frequently found. They are pure white with little or no gloss. They measure from ·59 to ·53 in length and from ·46 to ·42 in breadth. The average of 10 eggs is ·55 by ·44

62.—Passer indicus, *J. and S.* (706.)

This bird is just as common as *montanus* in the neighbourhood of Pegu town. At Rangoon it disappears, for I failed to observe it in the town.

Breeding does not commence till December, and with few exceptions terminates in April or May. (N. & E., p. 457.)

63.—Passer montanus, *L.* (710.)

Breeds about the same time as *indicus*, but commences somewhat earlier and finishes later. (N. & E,, p. 460.)

64.—Mirafra microptera, *Hume.* (755 *bis.*)

See "Nests and Eggs," p. 475.

65.—Alauda gulgula, *Frankl.* (767.)

I found a nest of this bird with three eggs, nearly hatched, as early as the 28th December. It goes on breeding till April. (N. & E., p. 486.)

66.—Crocopus viridifrons, *Blyth.* (773 *bis.*)

One egg was brought in by my collector with the female bird. It was found in April and there were two eggs. The nest was reported to have been placed in a bamboo at a good height up one of the branches. Size of egg brought in 1·11 by ·89; white with little gloss.

67.—Osmotreron bicincta, *Jerd.* (774.)

Nest with two hard set eggs in a thick bush about 7 feet from the ground. White with a little gloss; 1·06 and 1·09 by ·87

respectively. The nest was merely a few sticks laid together like a dove's. (N. & E., p. 493.)

68.—Turtur tigrinus, *Temm.* (795 *bis.*)

Breeds abundantly from the 1st August to 15th March, after which date very few nests are to be found.

Eggs white and very glossy; average size of 22 eggs, 1·11 by ·85.

The nest is placed anywhere; shrubs, bamboos and trees being equally used. (N. & E., p. 506.)

69.—Gennæus lineatus, *Lath.* (809 *ter.*)

See "Nests and Eggs," p. 525.

70.—Gallus ferrugineus, *Gm.* (812.)

See "Nests and Eggs," p. 528.

71.—Francolinus sinensis, *Osb.* (819 *bis.*)

See "Nests and Eggs" p. 539.

72.—Turnix plumbipes, *Hodg.* (833.)

August 10th.—Nest with four eggs in bush jungle. The whole egg is covered with numerous small spots of yellowish brown, pale purple and dark blackish brown. Hardly any of the ground color is visible. It appears to be of a pale stone color. The eggs are very glossy, and two measure ·93 and ·9 by ·83 and ·82 respectively. (N. & E., p. 554.)

73.—Glareola lactea, *Tem.* (843.)

Commences to lay about the middle of April. (N. & E., p. 568.)

74.—Sarcogramma atronuchalis, *Bl.* (855 *bis.*)

My eggs have been taken between the 15th April and 15th May. After the latter date few eggs are to be found.

They are placed on the ground in grass or paddy land on the bare soil, a few bits of hard clay disposed round the cavity marking the limits of the nest.

The number of eggs is generally four. Ground color, *café au lait*, thickly blotched, streaked, and spotted with deep blackish brown; surface marks and paler shell ones. The marks are thickest at the broad end, where they often form a cap, but never a ring. Average of 13 eggs, 1·64 by 1·17. (N. & E., p. 576.)

75.—Grus antigone, *L.* (863.)

This bird is common in the vast plains of Lower Pegu, and I procured one egg in August. (N. & E., p. 584.)

76.—Parra indica, *Lath.* (900.)

I procured a nest with four eggs on the 6th of August. (N. & E., p. 591.)

77.—Porphyrio poliocephalus, *Lath.* (902.)

I procured one nest with eggs in August. (N. & E., p. 594.)

78.—Gallicrex cinerea, *Gm.* (904).

July 17th.—One nest with three eggs.

August 7th.—One nest with three eggs, and a fourth was taken from the female bird. Makes its nest in rank grass near paddy fields. (N. & E., p. 596.)

79.—Gallinula chloropus, *L.* (905.)

Nest with five eggs on 6th August. This is, however, one of my finds which is not so well authenticated as I should wish. (N. & E., p. 597.)

80.—Erythra phœnicura, *Forst.* (907.)

This bird always constructs its nest in trees at heights not below 10 feet. It selects a creeper grown tree either in paddy land or on the outskirts of forest. I failed to find the nest at Thayetmyo, because I looked for it on the ground. A bamboo bush, the branches of which are well entangled, is also much affected. The nest is merely an irregular platform of dead and green leaves resting on a few twigs. One nest found on the 10th June contained four eggs, and another found on the 24th of the same month contained also four well incubated eggs. These eight eggs measure from 1·6 to 1·43 in length, and from 1·21 to 1·1 in breadth. They are almost without gloss, pale buff, covered profusely with spots and small dashes of reddish brown on the surface and paler ones of the same color sunk into the shell. (N. & E., p. 599.)

81.—Hypotænidia striata, *L.* (913.)

This bird, with us, is very common in Lower Pegu, and I have found no less than eight nests. The breeding season seems to extend from about the 1st of July to the 11th October, on which latter date a nest of well incubated eggs was found.

The nest is a mere pad of soft grass leaves and the outer rind of the elephant grass, about eight inches in diameter and one thick, placed in a tuft of grass always near water and raised a few inches above the ground. The coarse grass growing round

paddy fields is a favorite locality. The bird sits very closely and the nest is not easy to discover. The male bird sits on the eggs, at least at times, and I killed one with a stick while he was sitting on seven eggs.

Seven is the full number of eggs, occasionally six only. In length they vary from 1·43 to 1·18, and in breadth from 1·08 to ·96, but the average of 31 eggs is 1·34 by 1·00; some are almost glossless, others are considerably glossy. The ground color is pinkish stone, pale when fresh and darkening as incubation proceeds. The shell markings consist of blotches and splashes of pale purple evenly but sparingly distributed over the egg, and the surface marks consist of large blotches and streaks of rather bright rusty brown. These marks are larger at the thick end than elsewhere and run chiefly in the direction of the longer axis of the egg. In some eggs the marks form a distinct cap, and the shell marks are very few. All the eggs are exceedingly beautiful.

[When "Nests and Eggs" were published I had not seen the eggs of the true *striatus*. The only eggs I had were of the Andamanese *obscuriora*. In 1875 Mr. Cripps sent me three specimens of the bird, four eggs and a broken one, and the following note:—

"I cannot make out to what species these Rails belong. The irides in ALL the three specimens sent you were dark-red, and the legs and bills were more of a pinkish than reddish color. No trace of green on either bills or legs. Those two killed on the 8th May were a pair; the same shot wounded both while they were walking about a piece of weed-covered water near my bungalow; an hour after the female was shot; she laid an egg, which unfortunately got broken. I send it, however, to compare with the other four eggs which were found in a grass field close to water on the 22nd June; the female was caught on the nest, which was a heap of grass rushes, &c., about 5 inches high with a slight depression in the centre. This species of Rail is very common here at present, but whether they remain all the year round I must find out."

The eggs of this species obtained in Sylhet by Mr. Cripps are regular ovals of the usual Water-hen type. The shell is tolerably fine and compact, but they have not much gloss. The ground color varies from white to salmon pink. The markings consist of spots, specks, streaks, and blotches of maroon red, and smaller spots and streaks of dull inky purple or grey. The markings apparently, never very dense or numerous, are chiefly confined to the larger end.

These eggs varied from 1·33 to 1·36 in length, and from 1·03 to 1·05 in breadth.—A. O. H.]

82.—Ardea purpurea, *L.* (924.)

The Sittang river at a place near Myitkyo takes a sudden turn to the west for five miles and then turns again to the east for the same distance, thus forming a peninsula about 5 miles long and 2 miles broad. The whole of this area is one vast dismal swamp, the chief feature of which is a gigantic reed called *Kyu* by the Burmese. This swamp in the rains becomes the resort of myriads of birds, the nidification of which will be noted below. It is possible to enter the swamp only during the highest floods, for otherwise the reeds offer too great a resistance to a canoe, and at the best the progress by poling is not more than 200 or 300 yards an hour. What wonders the interior of the swamp could reveal I cannot say, for I have never been able to penetrate it more than half a mile.

The numbers of nests of all sorts met with is marvellous. In pushing along the young fall, and eggs roll, into the canoe, and in some parts there must be a nest either of a Heron, Bittern or Cormorant on every square yard of reeds. Three nest frequently touch each other.

The most numerous species is perhaps the Purple Heron. It constructs a nest of sticks and the broken branches of the reeds about a foot in diameter and eight inches deep, nearly flat at top, and lays four or five eggs. The nest is placed about four feet above the water, resting on three or four reed stems which they or the wind have bent towards one point. I took eggs on the 7th July and 1st August, but cannot state the extreme limits of the breeding season. (N. & E., p. 611.)

83.—Herodias alba, *L.* (925.)

Almost every tope of mangoe trees forms a breeding place for these birds, which commence to build nests about the middle of June.

They also breed in large quantities in the swamp at Myitkyo, making a similar nest to that of *A. purpurea*, and frequently the two nests are in contact with a small Cormorant's next door. (N. & E., p. 613.)

84.—Ardeola Grayi, *Sykes.* (930.)

I have taken eggs of this species as early as the 31st May, and some at this date were well advanced towards hatching. Most birds frequent trees, but a few apparently nest in the reeds at Myitkyo, though I did not see the nests. (N. & E., p. 619.)

85.—Ardeiralla flavicollis, *Lath.* (932.)

Breeds commonly in Lower Pegu. On 25th July found a nest near the top of a bamboo bush where several branches met

and formed a strong platform. Composed merely of dry stalks and leaves of coarse grass and of indefinite shape; four eggs nearly hatched; color pale green, with no gloss when fresh, but becoming shiney as incubation proceeds, when the ground color is barely visible owing to the dirt on the egg. On July 26th another nest on a mass of thorny bushes in a paddy field: three eggs, quite fresh. Dimensions of five: 1·61, 1·56, 1·68, 1·66, 1·61, by 1·2, 1·22, 1·25, 1·24, 1·25, respectively. (N. & E., p. 621.)

86.—Ardetta cinnamomea, *Gm.* (933.)

Usually lays five eggs, but I have found six occasionally. Nest on ground in swampy places, a mere pad of green grass; Lower Pegu. July 26th, six eggs slightly incubated. July 30th, five eggs fresh. August 10th, four eggs fresh. August 19th, five eggs much incubated.

Eggs measure in length from 1·36 to 1·21 and in breadth from 1·1 to ·98. The average of 20 eggs is 1·28 by ·99. The color is dull white without gloss and the shell is very smooth to the touch. Fresh eggs, before being blown, are decidedly pink, the contents shewing through the shell. (N. & E., p. 622.)

87.—Nycticorax griseus, *L.* (937.)

This bird breeds in immense quantities in the swamps already mentioned. I have not taken the eggs because it was simply impossible, among the mass of birds, to authenticate the eggs properly. This bird flew off before the nest could be seen, whereas many of the other species allowed the canoe to approach pretty near before going away. July and August may however be considered the months in which they lay. The nests do not differ from those of *purpurea* and *alba;* for I saw only one type of nest all the time, and many must have belonged to the present species. (N. & E., p. 624.)

88.—Inocotis papillosus, *Temm.* (942.)

I enter this bird with doubt, for the nest may have belonged to *I. Davisoni*, Hume, which, in all probability, extends up to Pegu. I visited the nest at dusk and missed the bird which was sitting. The black Ibis, whichever species it may be, is rare in the Pegu plain, and I do not see more than a pair in the course of a year and have never shot one. In Vol. III, p. 347, I recorded *papillosus* from Lower Pegu, but at that time Mr. Hume's new species had not been described.*

* Judging from the size of the egg I should guess that this nest belonged to *papillosus*; I should expect *Davisoni* to lay a considerably larger egg.—A. O. H.

Which of the two birds is found in Pegu must remain in doubt till I can shoot a specimen.

As to the nest, it was placed on the branch of a tree about 15 feet from the ground on the banks of a creek. It was a small shapeless mass of sticks and contained two eggs so near hatching that I could preserve only one. It measures 2·55 by 1·8; it is smooth, without gloss and of a pale blue, much stained by the bird's feet. The nest was found on the 13th February. (N. & E., p. 633.)

89.—Dendrocygna arcuata, *Cuv.* (952.)

I have found nests from the 6th July to the 29th August, twice with 6 and once with 7 eggs. The nest is apparently always placed on thick matted cane brakes in paddy fields or on the ground in thick grass. I have never seen any indications of nests on trees. In all the three nests I have found the above number of eggs was the full complement, for the female in each instance, on dissection, contained no mature eggs. (N. & E. p. 639.)

90.—Seena aurantia, *Gray.* (985.)

See "Nests and Eggs," p. 650.

91.—Sterna javanica, *Horsf.* (987.)

See "Nests and Eggs," p. 652.

92.—Pelecanus philippensis, *Gm.* (1004.)

On the 15th October a female of this species I shot contained a fully formed egg, and on the 26th by firing a volley into a flock we killed eight birds, two of which yielded perfectly formed eggs, ready to be laid. These three eggs measure 3·03, 3·18, and 2·95 in length, by 2·05 in breadth. They are pure white and glossless.

Mr. Olive, Superintendent of Police, has visited a large pelecanry at a place called Sein Kwa about 20 miles due west of Shwaygheen. I have not been able to visit the place, as in November you can go there neither by boat nor on horseback. They build, he told me, near the top of gigantic wood-oil trees with adjutants. (N. & E., p. 650.)

93.—Graculus carbo, *L.* (1005.)

This bird breeds in vast numbers in the Myitkyo swamp, placing its nest in low, apparently dead trees, which rear their heads 15 or 20 feet above the water. I found it impossible to approach the trees quite closely myself, so I sent a Burman who brought me a basketful of eggs in a few minutes. From

a short distance the nests appeared to be made of twigs; but I have often seen these birds dive in the canal and fly off with weeds fully 5 feet long. These, no doubt, enter into the composition of the nest. There were either four or five eggs in each nest. The egg is covered with dirty white chalky matter; when this is removed the shell is a very pale blue. As incubation proceeds the egg becomes very dirty. I took the eggs on the 4th October, but up to the 27th of that month I observed a great number of birds still carrying sticks and weeds towards their breeding quarters. The eggs measure in length from 2·6 to 2·3 in length, and from 1·7 to 1·5 in breadth.

As no writer, whose work I possess, has thought it necessary to state that the white flank spot of this bird is seasonal, it may be well to record that in Burmah it is assumed about the 1st September and on the 15th December not one bird in a hundred retains it.

94.—Graculus fuscicollis, *Steph.* (1006.)

This bird breeds in reeds in the Myitkyo swamp alongside the many other birds which are found there. Although the bird is very numerous I came across only one nest with eggs, the rest containing young ones. This was on the 25th July.

The nest is made of the smaller side branches of reeds, is flat at top, converging to a point below, about 9 inches across and 6 deep, supported on a few bent reeds. Eggs 5, 1·92 to 2·15 long, and 1·27 to 1·4 broad. Color as in other Cormorant's eggs. (N. & E., p. 660.)

95.—Graculus pygmœus, *Pall.* (1007.)

Incredible numbers of this bird breed in the reeds of the Myitkyo swamps. The water is alive with the young birds which tumble out of the nests. They seem quite happy in the water and although some of the birds were certainly not more than a week old they dived readily on my attempting to seize them.

The nest is made of twigs and is similar to, but smaller than, that of *fuscicollis*. My eggs were taken on the 26th July and 24th August, but it must commence breeding some weeks before the former date. (N. & E. p. 660.

96.—Plotus melanogaster, *Penn.* (1008.)

Breeds on trees and not in reeds. It is very abundant in the Myitkyo swamp, where, on the 6th August, I saw some 200 nests on a few low trees. The nests, with few exceptions, contained eggs, a few young birds a few days old. (N. & E, p. 661.)

he have been referring to the *female* of *igneus*, for in that the grey is not near so *dark* as in many southern specimens of *peregrinus*.

Flagrans, Boie, in my opinion, is either a distinct representative species yet to be identified in Borneo or Sumatra, or it may be that a race of *peregrinus* occurs there, which is still darker than the southern Indian one; and I have specimens of this latter now before me in which the head and back are nearly black, and the rump and lower parts distinctly "igneus nec aurantius."

Anyhow our present bird is not *flagrans*.

Xanthogaster, Raffles, (Tr. L. S., XIII, p. 309, 1822) has been assigned by Moore and Horsfield, (Cat. B. Mus., E. S. C., p. 142) et auct., to *igneus*, Blyth, but this of course is erroneous, as *xanthogaster* is a female of the *speciosus* type, while *igneus* has a female of the *peregrinus* type.

Mr. Sharpe has united *xanthogaster* (S. F., IV., p. 208) with *ardens*, Boie, and this seems to be the general view now-a-days, and it is at any rate reasonable, but really this latter species is still more or less a myth.

All we have on record about it in the way of *original* and *authentic* description is Bonaparte's curt remark: "Ex Sumatra Similis *P. flammeæ*, sed minor." Such descriptions fix nothing until the avifauna of a locality has been exhaustively worked, and you are able to say it *must* be so and so, because nothing else occurs here which it could possibly be.

That Raffles, *op. cit.*, p. 310, gives another bird as "*Turdus flammeus* (*Muscicapa flammea*, Gmel.") which might well be the male of his *xanthogaster*, tells both ways—most likely his *flammeus* is *ardens* ♂, but then would he call the female a *Lanius* and the male *Turdus*? It is impossible to say; and until Sumatra has been exhaustively worked, it is equally impossible to say with certainty whether *xanthogaster* does equal *ardens* or not; for all we know *xanthogaster* may be a distinct and smaller species than what Raffles called *flammeus*, which latter again may be a third species, though it seems fair to assume for the present that *it* at any rate is the same as *ardens*.*

Even as to *ardens*, as before remarked, we have no certainty.

There is the bird I formerly identified as *ardens*, from Tenasserim and the Malay Peninsular, the male with the

* There are a few other names that I cannot identify—*Muscicapa subflava*, Vieillot, often given as a synonym of *P. flammeus* which it may be. *Phœnicornis? aureopygia*, Hay, Madr. Journ., No. XXXI., p. 158, from Hong Kong—the original description of which is not accessible to me. *Pericrocotus rubricinctus*, Blyth, mentioned by Bonaparte (Consp., I; p. 357) but which I have failed to trace.

wing 3·5 and the female about 3·35. The male is very like *flammeus*, but the female belongs to the *elegans* type; this is no doubt Lord Walden's *ardens* from Sumatra, wing 3 5; (*Ibis.*, 1873, p. 310.)

But this is certainly *not* Salvadori's *ardens* (Uccelli di Borneo, p. 143) from Sarawak, of which he has four specimens—wings, 3·16. Nor it is V. Pelzelns' *ardens* (Reise Novara. Vög., p. 80) which he says is like but "*conspicuously smaller*" than *flammeus*, which itself often has the wing 3·6, and in which it never exceeds 3·75.

In Salvadori, and V. Pelzeln's birds we have a second smaller species, to which doubtless belong Lord Walden's specimens, with the wing 3·10 from Malacca; and I am inclined to believe now that this is the true *ardens*, as the one I at first identified with *ardens* and provisionally named *flammifer* (S. F., III., p. 221. *n.*) is not very appreciably smaller than *flammeus*, and would not have been thus defined.

Of the smaller race, the true *ardens*, as now I take it, I have a female from Johore—a very different bird, answering well to Raffles' description, with an olive-green shade on the grey, and only the sides of the forehead conspicuously yellow; length in the flesh, 7 inches. Unfortunately both wings are imperfect. We shot the bird on the 18th of August, and it had just moulted, and the first two or three of its quills are still not fully grown, though in all other respects the bird is in superb plumage. I cannot, therefore, make out *for certain how many of the earlier primaries want the yellow patch.*

This is the *most* important point in the sub-group to which this species pertains. I have now examined, for the purposes of this paper, nearly 350 specimens of ten species of this genus (Nos. 5 to 14 in the subjoined diagnosis), and I find that, in the same sex of each species, the number of primaries unmarked with the red or yellow patch is absolutely constant. Mind I speak of a patch, because in several species a coloured hair line occurs *occasionally* on the next primary preceding the first on which the patch appears. Of course the wing must be *perfect*; ça va sans dire; the earlier primaries are the latest to be fully developed, and yet it would seem amongst the first to be shed; but a careful examination of *both* wings, which are generally symmetrically deficient, (*i.e.*, where the second quill has been shed on one side, it generally has been so on the other), and comparison with other wings of the same species will enable one in every case to make sure whether the wing is perfect or not, (the first primary I note seems very often wanting), and in every perfect wing the point I have alluded to will be found absolutely invariable in the same sex

of the same species in *this* sub-division of the Pericrocoti. There is *not* the same constancy in the sub-groups to which *erythropygius*, *peregrinus*, &c., belong.

Until this is recognized, and Javan, Bornean, and Sumatran specimens of this sub-group examined with reference to it, we shall never have the several species which doubtless inhabit these Islands clearly discriminated.

I may add, too, that it should be borne in mind that in adults of this genus the size of wing varies but little in the same species. Any considerable difference in the size should excite suspicion of specific difference.

It will now be convenient to review briefly all the species, 14 in number, belonging to the genus *Pericrocotus*, which occur to my knowledge within our limits, both with reference to this and other matters, which should always be noted in discriminating the various species.

But first I will lay before my readers a diagnostical table, which will, I hope, enable the least skilful to identify at once any of our 14 species that they may come across.

WITH A NARROW WHITE OR YELLOWISH WHITE WING BAR ... ... (1.) cinereus, or ? immodestus, *nob.*

WITH A CONSPICUOUS WING SPOT.

Wing spot, white.

1. *forehead black or brown* ... (2.) erythropygius.
2. *forehead white* ... ... (3.) albifrons.

Wing spot colored. ... ...

1. *head unglossed grey, greyish brown or dusky; no bright colour on forehead; rump never yellow.*
   A. Wing, 2·6 to 2·9; no bright coloured margins to outer webs of tertiaries and later secondaries near their tips. (4.) peregrinus.
   B. Wing, 3·2 to 3·53; outer webs of tertiaries and later secondaries with rosy margins near tip ... ... (5.) roseus.
2. *Male—Head blackish dusky with a blue gloss. Female—Head, grey; no bright colour on forehead, but rump yellow* ... (6.) solaris.
3. *head in male glossy black; in female grey, with orange or yellow on forehead.*
   A. No bright colored margins to outer webs of tertiaries and later secondaries near their tips.
      (*a*). *W.*, 3·4 *to* 3·7. *Female, chin and throat yellowish white or very pale yellow; rump yellow* (7.) brevirostris.

(*b*). *W.*, 3·2 *to* 3·37. *Female, chin and throat full bright yellow; rump yellow.* ... ... (8.) neglectus.

(*c*). *W.*, 2·8 *to* 3·03. *Female, chin and throat orange yellow; rump fiery red* ... ... (9.) igneus.

B. Outer webs of tertiaries and later secondaries, with bright colored margins near tips.

(*a*) *Two first primaries in adult male, and three first in female, and young male without any red or yellow patch on outer web.*

(1). W., 3·9 to 4·2; central tail feathers in male as a rule black ... ... (10.) speciosus.

(2). W., 3·5 to 3·8; central tail feathers almost invariably with more or less of outer webs red ... ... (11.) elegans.

(*b*) *Three first primaries in adult male, and four in female, and young male without any red or yellow patch on outer web; female orange yellow with much red on forehead.*

(1). W., 3·5 to 3·8. Very rarely a portion of outer webs of central tail feathers red ... ... (12.) andamanensis.

(2). W., 3·37 to 3·5. Outer webs of central tail feathers always red ... ... (13.) flammifer.

(*c*) *Four first primaries both in male and female without any red or yellow patch on outer webs; female, pure yellow below, and little yellow on forehead. W.*, 3·45 to 3·75.... (14.) flammeus.

1.—Pericrocotus cinereus, *Lafres.* Rev. Zool. VIII. p. 94, 1845.—

Gould B. of As., Pt. IX. pl. 7.—modestus, *Strickl.* P. Z. S., 1846, p. 102.—

luctuosus, *De. Fil.* Cat. Mus. Mediol., 31st March, 1847.—motacilloides, *Swinh, Ibis,* 1860, p. 58.

It is only on the authority of others that I unite the other names given with *modestus.*

I have a considerable series (10 females and 2 males) shot by ourselves in November, December and February, in various parts of Tenasserim in the neighbourhood and to the south of Mergui, and at Pulo Seban and Kurroo, places about 20 miles distant from Malacca.

All my specimens are more or less in the stage of plumage described by Strickland; not one of them show any indications of the pure white forehead, jet black hinder crown and occiput, &c., figured and described by Gould as *cinereus.*

Very possibly ours are all immature.

Our Malaccan specimens answer *precisely* to Strickland's description.

"Above *uniform* cinereous; front whitish; lores black; remiges blackish, the medial portion of their inner webs white; the 5th* to the 9th* primaries, and all the secondaries with a sub-basal white bar on the outer webs; rectrices blackish, largely tipped with white; chin and lower parts white. L., 8; B. at f., 0·458; to g., 0·75; W., 3·75; Med. Rectr., 3·5; Exterior do., 1·5; Tarsus, 0·66; Mid-toe and Claw, 0·66."

To this I should only add that the tertiaries and later secondaries are generally more or less narrowly margined on their outer webs towards their tips with white, and the secondary greater coverts tipped with white. That the ear-coverts are nearly concolorous with the back; that the sides and flanks are shaded cinereous; and that the white of the wing bar of the axillaries and wing lining, are in some specimens more or less tinged (in one female before me conspicuously so) with yellow.

A male has the wing 3·8. Three females, measured in the flesh, varied as follows:—

L., 7·82 to 8·0; Ex., 10·62 to 11·25; T., 4·0; W., 3·65 to 3·76; Ts., 0·5 to 0·6; B. fr. g., 0·8.

These four specimens were killed in November.

But our eight Tenasserim specimens, also killed in November, December and February, all differ in some important respects from the Malaccan birds.

In the first place they are smaller, the bill conspicuously so in most cases.

A male has the wing 3·47. Seven females, measured in the flesh, varied as follows:—

L., 7·5 to 7·75; Ex., 10·6 to 11·0; T., 3·75 to 3·82; W., 3·5 to 3·62; Ts., 0·5 to 0·6; B. fr. g., 0·72 to 0·75.

Then whereas the rump and upper tail-coverts are, in the Malaccan specimens, cinereous *uniform* with the back; in all the eight Tenasserim specimens these parts are a pale fawn or whity brown, contrasting with the back and somewhat *like*, but not so brightly colored as, these parts in *P. cantonensis*. This latter, however, apparently altogether wants the wing bar in the male, and in the female has the whole of the upper parts lighter and browner; the quills edged with yellow, and the light part of the tail feathers a rather bright yellow.

Generally the upper surface of our bird is browner and less grey than in *modestus*, and the breast and sides are much overlaid with pale earthy brown.

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* Strickland does not count the small or bastard primary.

I am inclined to believe that the Tenasserim birds may prove distinct, (in which case they may stand as *immodestus*, nobis), but I am by no means certain. I am not personally sure that the Malaccan *modestus* is indentical with *cinereus* of the Philippines, China and Eastern Siberia; and further I am not at all sure that our Tenasserim species can be united with either.

Note that in both Malaccan and Tenasserim specimens there is no white patch on the outer webs of either of the first five primaries, counting the short first one, though there is not unfrequently a white line along the edge of the fifth primary.

I have mentioned *P. cantonensis*,* Swinh., (*Ibis*, 1861, p. 42; P. Z. S., 1863, 284—Gould. B. of As., Pt. XXVI., Pl. 14, of which *R. sordidus*, Swinh., P. Z. S. *loc., cit*, is the young), and I may remark that *one* of the females of the Tenasserim species agrees further with those of that species in having the wing bar bright yellow. The wing of *cantonensis* is given at 3·5.

As far as we yet know *our* grey species, whatever its correct name, only occurs within our limits in the extreme southern portions of the Tenasserim Provinces in the neighbourhood, and *South* of Mergui.

2.—Pericococus erythropygius, *Jerd.*

Madr. Journ., XI, 17, 1840—*Gould.* B. of As., Pt. I., Pl. 5. —*Jerd.* B. of I., No. 277, I., p. 424.

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* The following are Mr. Swinhoe's original descriptions of *cantonensis* adults and young *(sordidus)*—

"*Adult male.*—Bill and legs black; irides deep brown; forehead, throat, sides of nape and vent white; the rest of the underparts dingy; head, back, and scapulars deep brown, with a wash of grey, blacker on the former; rump and upper tail-coverts light yellowish brown; wings and tail rich hair-brown, the former edged paler, the latter with the stems brownish white, and more or less white on all but the two central rectrices; white of under wing and wing bone with a wash of pale saffron the yellow being rather bright on some of the axillaries; wing-spot dingy yellow.

Adult female.—Rump more of a colour with the back than in the male; upper parts lighter and browner; wing spot bright yellow; quills edged with yellow; the light part of the rectrices rather bright yellow; axillaries and wing-bar fine primrose yellow; forehead narrow, dingy white, in other respects like the male.

"Length, 7¾; wing, 3½; expanse, 9¾; tail 3¾.

"*Young (sordidus).*—Upper parts greyish brown, paler on the forehead, and darker blue-grey on the head and hind neck; wings and tail hair-brown; greater wing-coverts tipped with white, but no wing-spot outwardly visible; two middle rectrices unicolorous, the rest more or less white; the throat and vent white, the former tinged with brown; a black spot in front of the eye; under plumage greyish brown; a dingy white bar runs across the under wing, with a faint tinge of primrose yellow.

"Length, 7½ inches; wing, 3½; tail, 3⅞.

"The tendency of the female to develop the yellow tints is in this much more strongly shown than in *P. cinereus*; so much so that Dr. Sclater declined to accept my identification of the sexes. But apart from any special examination of the sexual organs, the skins carry in their plumage their sexual stamp; for, analogous to what obtains in *cinereus*, the male of this has a white forehead and a dark head."

The Cawnpoor Flycatcher of *Lath.*, Gen. Hist., VI., 176, pl. xcviii.

In erythropygius, in both sexes, the extent of the white in the wing is variable. In some specimens there is no white patch on the first five; in others none on the first six. Thirty-two specimens examined.

The wings of a number of specimens varied as follows :—

♂'s—2·7; 2·7; 2·82; 2·7; 2·78; 2·67; 2·77; 2·78; 2·7.

♀'s—2·7; 2·6; 2·7; 2·8; 2·72; 2·7; 2·69; 2·79.

The Pied Minivet is essentially a bird of the moderately dry, fairly cultivated, plains country of Northern and Central India. It does not anywhere ascend the Hills, and it does not occur (except possibly as a straggler during the dry season) anywhere where the rainfall is heavy and the atmosphere normally moist.

In Bengal I have it only from various localities in Behar. In the N. W. Provinces it is chiefly in the Doab districts, and in Benares, Azimgurh, Jounpoor, Mirzapoor, and the districts south of the Jumna that it is found. In Oudh and Rohilcund it only occurs in the southern and drier districts. In the plains portion of the Punjaub, in Gourgaon, Rohtuk, Delhi, and Umballa it is not uncommon, but it is entirely absent from the more desert portions of Hurriana, Bhutteana, and as far as I know the Trans-Sutlej Divisions generally. It has not yet occurred to my knowledge in Sindh, nor in the more desert portions of Rajpootana, though wherever the country is a little less inhospitable, and there are more trees and better cultivation, it is not very rare even in Rajpootana. It has been met with in Cutch, Kattiawar, and Guzerat; I have specimens from the base of the hills that bound Khandeish on the north.

In Jhansie, Saugor, Nagpoor, Raipoor and most of the districts of the Central Provinces, and in many localities throughout the Deccan and Hyderabad it also occurs, but southwards of this my museum does not attest its occurrence, and though Jerdon says he *saw* it near Segoor, at the foot of the Neilgherries, I have never yet obtained or seen a specimen from that neighbourhood.

3.—Pericocotus albifrons, *Jerdon. Ibis*, 1862, p.20.

This species has already been described (Vol III, p. 96). In this, as in the preceding, so far as I can *judge*, the extent of white on the wing is variable, but I have examined too few specimens to speak positively here. The wings of the only three birds in our museum, all males, measure 2·6, 2·7, 2·65.

The Whitebrowed Pied Minivet appears to belong essentially to the dry open portions of Upper Pegu and Independent Burmah; like the preceding species, it is very capricious in its choice of localities, and is apparently, like it, never very abundant even in the special localities it affects.

4.—Pericocotus peregrinus, *Lin.* S. N., I., p. 342., 1766.—*Jerd.*, B. of I., No. 276, I., p. 423.—*Gould.* B. of As., Pt. IX, Pl. 5.

? cinnamomea, *Lin.*, S. N., I., p. 335, 1766.
? indicus, *Sparrm.*, Mus. Carls. t. 50, 1787.
malabaricus, *Gm.* S. N., I. 1012, 1788.
coccineus, *Gm.* S. N., I. 1015. 1788.

The name *cinnamomea,* if it really applied, ought strictly speaking to have precedence, but the diagnosis is absolutely wrong, and the description is so bad that it seems to have been by general consent set aside, and it is to *my* mind doubtful whether it does really apply.

I have already (S. F., I., p. 178) remarked upon the extraordinary degree to which the coloring of this species varies with locality; but I think it may be advisable to contrast clearly both sexes from say Anjango, in Travancore, and Sindh. No one examining these two types alone could admit that they belonged to the same species.

Sindh.	*Anjango.*
♂ Head and mantle pale grey.	♂. Head and mantle blackish iron grey.
Chin and throat greyish dusky.	Chin and throat intense black.
Entire lower parts and wing-lining white, with a fiery saffron tinge on upper breast only.	Entire breast, abdomen and sides intense fiery orange scarlet; wing-lining, vent and lower tail coverts bright orange.
Dark portions of wings and tail brown.	Dark portions of wings and tail black.
Rump and wing spot mingled pale yellow and pale scarlet.	Rump and wing spot intense scarlet.
♀. Head and mantle *very* pale earthy brown.	♀. Head and mantle dark grey brown, much darker than these parts in the Sindh *male.*

Sindh.	*Anjango.*
Entire lower parts pure white.	Entire lower parts orange, albescent on chin and upper throat.
Wing spot, pale creamy yellow.	Wing spot bright orange.
Rump, grey tinged yellow; upper tail-coverts pale orange scarlet.	Rump and upper tail coverts intense scarlet as in male.
Terminal portions of lateral tail feathers white, barely tinged with yellow towards the basal portions of the white.	Terminal portions of lateral tail feathers orange scarlet.

I am very much puzzled about these widely differing forms, because ornithologists generally are so utterly illogical; in the present case it is usual to consider these strikingly and conspicuously different colored birds as one and the same species, because (as I gather) intermediate forms occur; but then as a rule every one seems to consider *Thamnobia cambaiensis* and *Thamnobia fulicata*, or again *Coracias indica* and *Coracias affinis*, as distinct species, and yet the two forms in these cases are not nearly so conspicuously different as in the case of *peregrinus*, and they are equally connected by an unbroken chain of intermediate forms.

It seems to me that the time has come for the great Doctors of the Law in Europe to issue their *Futwa* on this important point, and by adopting one rule secure something like consistency in our method of dealing with this very common contingency.

Personally, I am for ruling that no two forms shall be considered distinct species which are connected by a truly perfect and unbroken series of intermediate forms.

I have already discussed this question in my article: "What is a Species," III., p. 257; but until the authorities at home take the question up and decide it one way or another, the existing misleading diversity of practice will continue. A diversity which sadly impairs the value of generalizations, based not on a personal knowledge of the species, but on tables of names, and as it is scarcely possible for any one naturalist to possess an accurate personal knowledge of even half the species his generalizations cover, it follows that this diversity more or less invalidates almost every generalization.

Still worse is the existing diversity of practice as to what does and does not, or should or should not, constitute a distinct genus; and no one who has carefully studied the latest and greatest work on the Zoological Provinces of the world, * can fail to have observed in any province, of which he possesses a special knowledge, how greatly this confusing diversity of generic value has vitiated the talented author's conclusions.

But to return to *peregrinus*. The extraordinary diversity of its more extreme forms, and the diversity of practice that prevails as to the specific separation of such forms, makes it of some interest to try and ascertain which of the existing names apply to which form.

Linnæus' name *peregrinus* is clearly founded on a specimen—at any rate he *quotes* no previous authority. The diagnosis *uropygia coccineo, corpore cinereo, subtus albo*," does well enough for a female of the northern race, and the description more clearly fixes both race and sex.

"*Cinereum, subtus* TOTUM ALBUM. *Uropygium coccineum. Remiges* FUSCÆ. *Rectrices omnes nigræ, exceptis quatuor intermediis, postice oblique* LUTEIS, *ita tamen ut luteus color prævaleat in* 5,5, *non vero in* 6,6."

Cinnamomea of Lin. seems to me very doubtfully applicable. The diagnosis is absolutely wrong.

"*Cana, subtus coccinea, gula nigra, remigibus quatuor primis basi rubris.*"

The first four quills are not red at their bases, and the above can be translated in no other way. The description says the same, but in the description by changing the place of a comma, a different interpretation is open to us, more in accordance with the facts, and it is possible that having written the description, from a specimen, the accidental omission of a comma, later led him when abstracting the diagnosis to forget his own original meaning.

"*Corpus supra canum; Gula nigra. Coccinea sunt pectus, abdomen, uropygium. Remiges nigræ, exceptis quatuor primis basi rubris, unde macula alarum rubra, in altero sexu. Rectrices nigræ, sed quatuor intermediæ latere oblique rufæ.*"

By inserting a comma after "*primis*" we shall get a correct description, but one that is distinctly at variance with the diagnosis. But then I do not think that in the brightest southern specimens, the *abdomen* can properly be called *coccineus*, and in no male *(Gula nigra)* in which the abdomen makes any approach to this, can the upper surface be described as *cana*.

* THE GEOGRAPHICAL DISTRIBUTION OF ANIMALS, *by* Alfred Russel Wallace—Macmillan & Co., London. 2 vols, 1876.

Then what about the tail? I confess that I am not up in Linnæan latin. The straightforward translation seems to be "The rectrices are black, but the four intermediates are obliquely red on the side."

By intermediates I understand (and no other interpretation can I believe be put upon the word) those that are in the middle—the 2, 4, or 6 central feathers, as the case may be; but if so then the description is clearly utterly wrong.

No previous authorities are referred to; the description is apparently founded on some specimen, received from Governor Claud Loten of Ceylon, who was by no means particular apparently as to the exact locality whence his specimens were really derived.

It appears to me that this description and name must be entirely set aside.

Indicus of Sparrman, though usually assumed to apply to this species, probably according to Sundevall, applies to *Parus bicolor*, Lin, and under any circumstances is too doubtful a name ever to be applied to either form.

Coccineus, Gm., is founded on Pls. 48, 49, of Sparrm. Mus. Carls., which refer to *peregrinus*. I have not Sparrman's plates to refer to but Gmelin's description.

"*Cinereus, pectore, maculo alarum, uropygio rectricibusque lateralibus posterius coccineis*" points clearly to a male of the northern race, in which the throat is dark cinereous, not black, and only the breast is scarlet.

Malabaricus, Gm., founded on Sonnerats "Messange de la côte de Malabar," and Latham's "Malabar Titmouse" is equally clearly the male of the southern race.

"*Griseus*, SUBTUS EX RUBRO AUREUS, GULA NIGRA, *remigibus rectricibusque* NIGRIS, *lateralibus, et remigibus secundariis nonnullis a basi ad medium rubescentibus.*"

The black throat, black wings and tail, and entire lower surface, "*ex rubro aureus*," indicate at once the species.

I, therefore, come to the conclusion, that if we are to be logical and act in regard to this species as we do in regard to *Thamnobia, Coracias, &c.*, we must separate the northern form as *peregrinus*, L., and the southern as *malabaricus*, Gm.

As regards the extent of red or orange on the wing I find that in this species also it is not quite constant; as in both sexes sometimes the first four, and sometimes the first five, primaries want the colored patch.

I examined 90 specimens; and then taking one-half at random, measured the wings and noted how many primaries wanted the patch—with the following results :—

MALES.

Locality.	Number of Primaries wanting the coloured patch.	Length of wing.
Narra, Sindh ...	4* (Trace on 5th.)	2·6
Anjango ...	4*	2·85
Dehra (moulting, uncertain) ...	4*	2·9
Amherst ...	4	2·75
Bopyn (Tenass.)	4	2·8
Amherst ...	4	2·7
Atteran R. ...	4	2·77
Yeaboo ...	4	2·8
Sambhur ...	5	2·7
,, ...	5	2·67
,, ...	5	2·7
,, ...	5	2·65
,, ...	5	2·6
Subsiwaliks ...	5	2·8
Dhoon ...	5	2·8
Sirsa ...	5	2·6
Kykphou ...	4	2·85
Elephant Pt. ...	4	2·6
Gourgaon ...	5	2·65
Matheran ...	5	2·65
Dehra ...	4*	2·8
,, ...	4*	2·9
Ajmere ...	5	2·67
Anjango ...	5	2·9
Goodalore ...	5	2·8
Mahabuleshwar	5	2·7
Matheran ...	5	2·65
Hills North of Khandeish ...	5	2·7
Muttra ...	5	2·6
Mt. Harriet (Andamans)	5	2·8

FEMALES.

Locality.	Number of Primaries wanting the coloured patch.	Length of wing.
Anjango ...	5	2·8
Larkhana (Sindh)	5	2·6
Etawah ...	5	2·6
Atteran R. ...	4	2·7
Amherst ...	5*	2·7
Andamans (moulting uncertain)...	4	...
Port Blair ...	5	2·82
Sirsa ...	5	2·6
Akyab ...	4	2·73
Elephant Pt. ...	5*	2·6
Gourgaon ...	5	2·6
Port Blair ...	4	2·8
Macpherson's Sts.	5	2·9
Kykphou ...	4	2·7
Amherst ...	4	2·73
Moulmein ...	4	2·8

I copy the above in detail, because the curious result appears that setting aside the Andaman birds, in which the number of plain primaries is indifferently 4 or 5, all the Indian birds but 5 (marked with an asterisk) have five plain primaries, and all the Burmese birds but 2 (also similarly marked) have four. And out of the five Indian exceptions, one is doubtful, and in another I find I had noted that there was a *trace* only of a patch on the fifth. I much regret that at the time I did not go through the whole series; but I have only discovered this curious coincidence in writing out my notes now.

As to distribution I have the species from almost every part of India, Burmah (including in this Pegu, Arracan, and Tenasserim) Ceylon and the Andamans, but it is not known to occur in the Nicobars, and is not found, to the best of my knowledge, anywhere in the North-West Punjab, Trans-Jhilum in fact, and it neither ascends the Neilgherries nor the Himalayas. Mr. Sharpe and others quote it from Nepal, but it does not I believe occur there. As far as I can make out the Nepal habitat rests upon Mr. Gray's erroneous identification of Hodgson's plates

Nos. 295, 296, *Phœnicornis cancha* of H[illegible] clearly, with the white sides of throat in b[illegible]emale, represent *solaris*. There *may* be specimens of *peregrinus* in Hodgson's collection, but if so, they probably came up from the low country at the base of the Hills or the low outer Hills, and were never I believe obtained in Nepal Proper.

No doubt Hodgson's plate No. 705 *Phœnicornis pusillus*, Hodgs. MSS., does represent the present species, and on this on the face of it is a note by one of Mr. Hodgson's clerks to the effect that the species is "unknown below" and again "unknown in plains!" But Mr. Hodgson's own note on the reverse shows that all his four specimens there recorded came up from the "Lower Hills," and though these, as well as the Terai, may form part of the territory now under Nepalese rule, it is totally destructive of any right conception of the distribution of the species to include Nepal (as always understood in Europe) within its range.

As already noticed we have, as I believe, in *P. flagrans*, Boie, *ap.* Bonap., a distinct and as yet unrecognized species of this same sub-group, quite distinct from *igneus*, Blyth, which belongs to a different sub-group.

5.—Pericrocotus roseus, *Vieill.* (Nouv. Dict. d'Hist. Nat. *XXI*, 486.)

Jerd, B. of In., I., 422.—*Hume*, S. F., IV., 317.—*Gould*, B. of As., Pt. IX., Pl. 6.

affinis, *McClell* apud *Blyth*, J. A. S. B., XV. 310, et *Moore and Horsf.* Cat. B. Mus. E. T. C. I. 141, et *Gould, loc. cit.* nec *McClell.*

In this species neither sex, (and I have examined 46 specimens), ever has either the red or yellow *patch* on any of the first four primaries, though there is occasionally a narrow red *line* (or yellow, according to sex) on the margin of the fourth.

The female has no colored frontal band, and has the chin and throat entirely white (*solaris* has only the sides of the throat white). In the male the white is more or less faintly tinged rosy or greyish rosy.

The two central tail feathers are always entirely brown or blackish brown, generally very narrowly tipped rosy.

The bill is perhaps more triangular and depressed than in any other of our Indian species.

Wings vary as follows :—

♂'s.—3·3; 3·3; 3·3; 3·65; 3·35; 3·47; 3·4; 3·5; 3·5; 3·3; 3·5; 3·4; 3·45; 3·4; 3·2.

♀'s.—3·35; 3·45; 3·4; 3·4; 3·53; 3·3; 3·55; 3·5; 3·53; 3·4.

I have already, S. F., IV., p. 317, alluded to the great variation in colour between examples of this species from the North-West Punjab and Tenasserim. The two birds look almost as different, as do Sindh and Travancore specimens of *peregrinus*. At that time following Blyth, I suggested that the richer colored Eastern form should, if separated, bear McClelland's name *affinis*, but I find that this name was not really applied to *roseus*, but as far as can be judged to the females of *brevirostris* (which McClelland made the male of his species) and *solaris*. The name is therefore one that must be entirely rejected, and if the Eastern race *is* to be separated, it must have a new name and might stand as *P. intensior*, but I personally would certainly *not* separate it.

The Rosy Minivet is essentially a bird of the hills, straying however during the cold season into the plains where these are well wooded and watered. It is entirely unknown in the drier and barer plains country. Throughout the outer southern ranges of the Himalayas,—from the very confines of Afghanistan to the extreme head of the valley of Assam—it is not uncommon. It equally occurs throughout the complicated Hill series, that commencing south of the valley of the Berhampootra, under various names, *e.g.*, the Garrow, Naga, Jaintea and Khasia Hills, Hill Tipperah, the Pegu and Arracan Yomas, the Karen Hills, &c., &c., run down along various lines, one of them being extended to form the backbone of the Malay Peninsular. On this latter range we have it as yet only about as far south as Mergui.

In the cold season it is found in all the moist luxuriantly-vegetated tracts which lie beneath these hills—in the Dhoon, the Rohilcund, Oudh, Nepal and Sikhim Terais (never extending into the dry portions of Behar), the Bhotan Doars, Kooch Behar, Sylhet, Cachar and Tipperah, and in Arracan and Tenasserim. It extends far into the damp plains of Lower Bengal, and I have repeatedly shot it in the immediate neighbourhood of Calcutta.

Nowhere else in India have I observed it, from no other localities have I received it. In the many suitable localities in Chota Nagpoor, the Tributary Mehals, the Vindya and Satpoora Ranges, the Western Ghats, the Neilgherries, Pulneys or Assamboo Hills, never have I myself nor any of my numerous collecting parties or correspondents as yet procured it.

Yet it must, it would seem, occur in some of these, as Dr. Jerdon says he "procured it in Gumsoor," (a place in Northern Ganjam immediately south of the Tributary Mehals,) "and obtained it from various parts of Malabar." He adds: "Lord Hay informed me that he had seen it most abundant on the

Hills dividing Tinnevelly from Travancore," in other words the Assamboo Hills; where *flammeus* indeed seems common, but whence, as yet, I have not been fortunate enough to secure *roseus*.

Gould says: "The late Hon. F. J. Shore, who obtained specimens near Pokree in Nagpoor, June 2nd, and at Urkoon, June 19th, 1832, states that it is called 'Powe,' and that it builds amongst the branches of trees a nest of moss, and is *only* seen during the six *summer months*." I cannot trace these localities, and the concluding remark is entirely opposed to my experience if these places are really in Nagpoor.

6.—Pericrocotus solaris, *Blyth*. J. A. S. B., XV., *p*. 310, 1846.

Gould, B. of As. Pt. 1, Pl. 4, lower figure* (of ♂) only.—*Jerd*. B. of I., I., p 422, No. 275.

flavogularis, *Blyth*. MSS. *op. et loc. cit. note.*

affinis, *Mc.Clell.*, P. Z. S., 1839, the supposed ♀ only, which = ♀ solaris.

In this species, of which I have examined 29 specimens, there is no red or yellow patch on the first four primaries, but there is often a narrow line of one of these colours on the margin of the fourth.

The red and yellow in the different sexes of this species are of almost the same tint as in *flammeus*.

In both sexes the chin is white, and sides of the throat are grey or greyish white, the central portion of the throat being orange or yellow, as the case may be.

In neither sex are there any bright coloured margins near their tips to the tertiaries and later secondaries.

The central tail-feathers are always black in the male, but often exhibit a narrow red margin on the terminal halves of the outer webs.

The female has no bright colour on the forehead, and has the back overlaid with olive green.

Wings that I measured varied as follows :—

♂'s.—3·2; 3·3; 3·4; 3·37; 3·2; 3·41; 3·2; 3·33; 3·2; 3·22.

♀'s.—3·2; 3·4; 3·3; 3·24; 3·4; 3·3; 3·45; 3·3; 3·3; 3·32; 3·3; 3·2.

This species is common in Sikhim and Nepal, but I have as yet obtained it nowhere else, except at Moolyit, one of the highest of the Central Tenasserim Hills. But Godwin-Austen

* The upper figure purporting to represent the female, represents the female of some other species possibly of *brevirostris*, but the lower parts are rather too brightly colored for that species.

obtained it in the Khasia Hills, and it probably occurs throughout the intervening Hills where these attain a suitable elevation. A specimen of the species is also said to have been procured by Capt. Biddulph in Cashmere. I have seen no specimen thence, and its occurrence there is the more remarkable that, having wandered throughout the Hills from the Dhuj and Takhil on the western frontier of Nepal to the Zojeela on the eastern border of Cashmere, and having had collecting establishments stationed for years in various localities in these Hills, I have never yet seen or obtained *solaris* anywhere in this region. That this species should thus entirely skip a region nearly 400 miles in length, the lower and less arid portions of which are eminently suited to it, and re-appear again in Cashmere, is to say the least of it a most remarkable fact, and I can only suppose that it must occur, though very sparingly, in the intervening tract, and that by some fatality neither I nor any of my collectors have ever chanced to come across it.

Closely allied to this species is P. GRISEOGULARIS, *Gould*, P. Z. S., 1862, 282; B. of As., Pt. XVI., pl. 11, of Formosa and parts of Southern China. Of this (*non vidi*) the wing is given at 3·5. The essential difference seems to consist in the *entire* throat being grey, and in the dark portions of the upper surface being in both sexes darker than in *solaris*, and in the female wanting the olive green mantle patch of the latter species.

Mr. Swinhoe, indeed, gives us one of the leading distinctions, the *orange* thighs of *solaris*, as constrasted with "tibial feathers black externally, ochreous internally" of *griseogularis*, but as a fact the thighs of *solaris* are *not* orange, but in the male dusky black externally and yellowish or ochreous internally, and somewhat similar, but lighter coloured and more tinged with yellow in the female.

I should mention that the Tenasserim specimens do seem to make a slight approach to the Chinese form in so far that they have the upper surface rather darker, that the amount of orange and yellow on the throat is less than in Sikhim specimens, and that the females seem to show less olive green on the mantle.

A fine male from Moolyit, measured:—Length, 7·2; expanse, 9·8; tail, 3·5; wing, 3·26; tarsus, 0·55; bill from gape, 0·6; the bill, legs, feet and claws were black; the irides, deep brown.

7.—Pericrocotus brevirostris, *Vigors*, P. Z. S., 1831, p. 43.

Gould. Cent Him. B. t. VIII. *Jerd*. B. of I., I. 423, No. 273.

affinis, *Mc.Clell*, P. Z. S., 1839, 157, (the supposed ♂ only, which = ♀ brevirostris.

We now have to deal with the typical sub-group; all the species hitherto dealt with are more or less aberrant; and although in some of these we have found the number of plain primaries somewhat variable, in the typical sub-group we shall find it an absolute constant.

I have examined 73 specimens of this species; in these in no case had either male or female a red or yellow *patch* on the outer webs of either of the first four primaries, but in 7 males out of 46, there was a red or reddish hair line on the margin of the fourth primary. In every case the males and females *had* a conspicuous patch on the outer webs of the fifth and succeeding primaries.

I have already noticed on more than one occasion the much greater intensity of colour exhibited by Sikhim, Assamese and Northern Tenasserim specimens. The colour in the male varies from a dull scarlet in the far west to the deepest crimson scarlet on the east.

The dimensions also in this species vary more I think than in any other of the genus. The total length varies from 7·5 to 8·5; the tail from 3·75 to 4·5. Wings varied as follows:—

♂'s—3·4; 3·7; 3·5; 3·65; 3·5; 3·63; 3·5; 3.56; 3·45; 3·65; 3·6; 3·7.

♀'s—3·5; 3·5; 3·61; 3·5; 3·67; 3·5; 3·65; 3·55; 3·69; 3·55; 3·5; 3·58; 3·6.

All the smallest birds are eastern and dark coloured. The female has the chin and throat pale dull yellow; in some specimens, especially those killed in the plains in the cold season, these parts might more properly be designated dull white, tinged with yellow.

This species abounds in summer throughout the lower better wooded ranges of the Himalayas, south of the first great snowy range, from Eastern Cashmere to Bhotan, at elevations of 3,000 to 7,000 feet. Westwards and eastwards of these limits, I have not yet personally ascertained its occurrence. During the cold season it is found in all the lower valleys and throughout the sub-montane tracts, and immense numbers visit the plains of the N.-W. Provinces, Oudh, the Punjaub and Central Provinces and Rajpootana, and the drier northern portions of Bengal. As a rule, they avoid the very barren and desert and the very humid tracts like the plains of Lower Bengal, keeping to open, well-cultivated, and drained and fairly-wooded country. I do not as yet know of its occurrence in Kutch, Kattiawar or Sindh, but it occurs at Mount Aboo and in Northern Guzerat. Jerdon got it, he says, at Goomsur, but this is

I think about its extreme southern limit, and, as far as my present experience goes, a line drawn from the mouth of the Taptee to that of the Mahanuddee, represents its ordinary southern limit. Eastwards I have it from Shillong, Cachar, Sylhet, Tipperah, Chittagong, Arracan and possibly the *northern* portion of the Tenasserim Hills, but the single specimen there obtained is rather doubtful. Anderson says he obtained it in Upper Burmah and various localities *en route* to Yunan, but it is not impossible that this may be the next species.

Pere David's *brevirostris* "which passes Pekin in migration, but does not breed in the Cheelee Province," will doubtless, when critically examined, prove distinct.

8.—Pericrocotus neglectus, *Sp. nov.*

I have only five specimens of this species, and all from the Central Hills of Tenasserim, from Moolyit, Meetan, &c. It is clearly a minature representative of *brevirostris*, and like it has the first four primaries in both sexes plain on the outer webs.

The total length varies from 6·5 to 6·8; the tail from 3·0 to 3·25; the wings varied,—♂'s 3·25, 3·3; ♀'s, 3·2, 3·37, 3·32.

Seeing however that the Eastern form of *brevirostris* is smaller than the Western, I should not have separated these birds, though much smaller than the smallest Sikhim and Shillong specimens, merely on account of difference of size. Nor would the proportionally much larger bill have satisfied me of their distinctness, nor even the fact that in both my males the black of the throat appears to descend further on the breast than in any one of 46 males of *brevirostris*, as this might be due to some stretching of the skin in preparing it; but when with these differences is coupled a female of a wholly different type, with the upper surface of a much darker grey and with the chin, throat, and entire lower surface of the rich bright hue of adult female *speciosus*, a hue not *approached*, as regards chin and throat at any rate, by any one of the 27 ♀ *brevirostris* now before me, I could not avoid recognizing what is clearly a distinct species.

The male is larger considerably than that of *igneus* (the females of course differ *toto cœlo*) and is not of the *flammeus* type as *igneus* male is, but of the colour of eastern *brevirostris*, and has like it the axillaries and wing lining and patch on the lower surface of the quills (this latter paler of course) *red* instead of as in *igneus*, *orange yellow*.

This species we have only from the Central Tenasserim Hills. How far it extends I cannot say. I believe that our single specimen, a male from the Northern Tenasserim Hills, is *brevirostris*,

but it is imperfect, and I should like to see more and perfect specimens thence before pronouncing decidedly.

9.—Pericrocotus igneus, *Blyth.*, J. A. S. B., XV., p. 309, 1845.—*Salvad.* U. di. B., 144.

minutus, *Tem. Strickl.* Contr. Orn., 1849, 94, pl. 32. ♂.

Blyth described this species as follows :—

"*P. igneus*, nobis, Malayan *P. flammeus*, auctorum, &c., and probably of Temminck,* P. C., 263. Size small, barely larger than *P. peregrinus* ; the wing measuring but two inches and seven-eighths, and the rest in proportion ; bill to gape five-eighths, and tarsi nine-sixteenths of an inch. Colour as in *P. speciosus*, except that the outer tail-feathers are less deeply red, and the wing band is proportionally smaller; the forepart of the wing underneath, with the band as there seen, is deep yellow, and the axillaries are yellow, irregularly tipped with red. Altogether the red is of a shade more igneous than in *P. speciosus*, but considerably less so than in *P. flammeus*. The female I have not seen. Described from Malaccan specimens."

The following are dimensions recorded in the flesh of two males of this species :—

Length, 6·5 ; expanse, 9·25 ; tail, 3·0 ; wing, 2·95, 3·05 ; tarsus, 0·55, 0·62 ; bill from gape, 0·7 ; weight, 0·6oz.

The wings of two other males measure 2·9 and 2·87.

In this species in neither sex is there any coloured patch on the outer webs of any of the four first primaries, and like both the two preceding (*neglectus* and *brevirostris*) there is no bright coloured edging towards the tips to the outer webs of the tertiaries and later secondaries.

To Blyth's description I should only add that some specimens are almost, if not quite, as fiery as many specimens of *flammeus*, and that the wing lining, axillaries and bar are always decidedly more *yellow* orange than even in that species.

Adult females, killed at Johore, Malacca, and the Pakchan estuary, measured—

Length, 6·3, 6·5 ; expanse, 9·2, 9·3 ; tail, 3·0 ; wing, 2·8, 2·9, 3·0 ; tarsus, 0·57, 0·61, 0·62 ; bill from gape, 0·6, 0·62.

A narrow band on the forehead, extending as a broad streak over the lores and anterior half of eye, chin, cheeks, throat, breast, sides of neck behind ear-coverts, and rest of lower parts bright orange, having a decided flammeous tinge on the lower abdomen, flanks and lower tail-coverts.

A broad dusky line through the lores ; forehead above the orange band, crown, occiput, nape, upper and middle back and

* Only *in part*, at any rate I think. The male as figured is too large, and the female is not of the *igneus* type at all.

scapulars moderately dark brown, with an olive and grey tinge; coverts paler, and greyer; rump and upper tail-coverts brilliant fiery scarlet, as in southern *peregrinus;* wings deep hair brown blackish about the carpus and the winglet; wing-band extending on the outer webs over bases of fifth and succeeding primaries, and all the secondaries, bright flammeous orange; four central tail feathers blackish brown, laterals flame-coloured, but with the basal 1-4th or 1-5th deep brown.

Such is the female of *igneus,* shot in company with the male, and sex ascertained by dissection.

Now though Strickland's female *minutus* is clearly of the same type, his description does not *accurately* represent our birds. It may be that he wrote carelessly, it may be that he had a female *peregrinus* of the eastern type and not the true female of his *minutus* before him, or it may be that his *minutus* is distinct, and while the males closely resemble each other the female differ. But I incline to the second hypothesis, as his description of the male is very accurate, while his description of the female fits female *peregrinus* (highly colored race) perfectly. He says: "♀. Grey above; wings and tail black, marked with orange yellow; rump and upper tail-coverts orange scarlet; lores, chin, and lower parts yellowish."

You cannot call female *igneus* grey above; it is a fairly dark brown with an olivaceous grey shade doubtless, but still brown, *peregrinus* is grey. Then the lores chin, &c., are *yellowish* in *peregrinus,* but in *igneus* they are bright orange, with a conspicuous dusky line through the lores. Lastly, *peregrinus* has no frontal band, while *igneus* has, and this though narrow so brightly colored that it could not have escaped Strickland.

Writers have hitherto so lumped up and confused *flagrans,* Boie, (which, as I have already explained, is in my opinion a species still to be re-discovered of the *peregrinus* type, the male with head and back *unglossed* black), *ardens* of Boie (which has in the male the *glossy* black head and back and the second wing patch and a female like *speciosus,* though with less yellow on the forehead,) and the present species (which has in the male the glossy black head and back, no second wing patch, and a female of the *peregrinus* type) that it is impossible to make out who has been referring to what; but if any one has meant to say that *igneus* does not in its female approximate to *peregrinus* then he is clearly wrong, as the fiery scarlet rump separates its female from the females of *speciosus, elegans, ardens,* &c., and distinctly unites it which the female of *peregrinus,* though the two differ *inter se* as above explained.

We have as yet only obtained *igneus* within our limits in the extreme south of the Tenasserim Provinces in the neighbourhood

of the Pakchan Estuary, the whole northern banks of which are in British territory, although many maps indicate the cont... Outside our limits we have procured it in the neighbourhood Malacca, and in the state of Johore on the mainland opposite Singapore.

P. MINIATA, Tem, P. C., p. 156, belongs apparently, (*non vidi*) so far as the male is concerned to the same sub-group with which we have been dealing, in that the male has the whole head glossy black, and that there are no bright colored margins to the outer webs of the tertiaries and latter secondaries near their tips; no second wing patch in fact, but the female is of a wholly different type. In fact Lord Walden suggested that the supposed female must be the male of another species, but Mr. Sharpe has pointed out (S. F., IV., p 210) that specimens of both sexes, collected by Mr. Wallace in Western Java, *agreed* with Temminck's plate, so that we must accept this abnormally coloured female as a fact. She is like the male, but with a frontal band, chin, cheeks, ear-coverts and sides of neck, bright red, the cheeks being sometimes variegated with black, and with the whole back red; each feather apparently centered dusky.

10.—Pericrocotus speciosus, *Lath.*

Ind. Orn. I., p. 363, 1790; Gen. Hist., V., p. 96, 1822.—*Jerd.* B. of I., I., p. 419, No. 271.*—*Gould* B. of As., Pt. IX., Pl. 3.

princeps, *Vig.* P. Z. S., 1830, p. 22; *Gould* Cent. Himl. t. VII.

We now commence with the second division of the more typical sub-group, *viz.*, that in which the tertiaries and later secondaries have near their tips bright coloured margins to the outer webs, forming a second wing patch.

To this division belong the present species, *elegans*, *andamanensis*, *flammifer*, the true *ardens* and *flammeus* and *exul*.

In the present species—and I have examined 46 adult specimens and 9 young males—only the *two* first primaries in the adult *male*, and the *three* first in the *female* and *young* male, want the bright patch on the outer webs.

The male is an intense scarlet with, where the feathers are displaced, a slight orange tinge. The whole of the central tail feathers are normally black, but rarely (in 3 out of 27 examined) more or less of the outer webs are colored like the terminal portions of the laterals. The female is a clear full gamboge or orange yellow below, the orange of the forehead extending over the anterior half of crown and sometimes further, but varying in intensity.

* Note that Jerdon says the central tail-feathers in the female are "light ashy grey." They are black or blackish brown.

Note that when there is any fiery tinge about an apparent female, it is really a young male. This is clearly shown by our large accurately sexed series, but native taxidermists, when not carefully checked, invariably take it for granted that the yellow birds are females and ticket them accordingly, without any examination of the organs. The wings I measured were as follow :—

♂'s.—4·2; 4·1; 4·15; 4·1; 4·17; 4·0; 4·15; 4·0; 4·21; 4·14; 4·0; 4·3; 4·2; 4·17.

♀'s.—4·05; 4·03; 4·3; 3·9; 3·9; 3·97; 3·95; 4·2; 4·1.

♂'s juv.—3·75; 3·83; 3·95; 4·1.

Mr. Ball has already remarked, S. F., II., p. 401, that the dimensions given by Lord Walden, *Ibis.*, 1873, p. 310, for a wing of this species, *viz.*, 4·6, is contrary to experience. I may add that, out of my whole series of 55 birds, only two Mussouri birds had the wings over 4·2, and in these,—one male and one female—they were 4·3.

Mr. Sharpe's area of distribution of this species "Himalayas and Central India"* is far too vague and comprehensive. So far as my present experience goes *speciosus* does not occur in the Himalayas westwards of the valley of the Tonse—a Hill affluent of the Jumna which the old Hill road from Simla to Mussouri crosses about half way between the two places. Certainly from Kotegurh, nearly due north of Simla, in the neighbourhood of which I had a collecting establishment for 5 years, who obtained I believe every bird that occurred within a circle of 100 miles, summer or winter, no specimen was ever sent me, and I have never myself *seen* any specimen from any part of the Himalayas west of the Tonse. Eastwards, of course, if *elegans* be united it may be said to extend to Assam, but I have reason to believe that true *speciosus* only extends to Western Bhotan.

Into Central India it does not, to the best of my belief, extend at all. In the *cold season* it is found in the submontane tracts below the Central Himalayas, as in the Dhoon, Northern Bijnore, Pillibheet, and the Rohilcund, Oudh and Sikhim-Terais and Bhotan Doars, and many parts of Eastern and Lower Bengal—as for instance Dacca and Jessore, in both of which I have shot it, and Calcutta, where Jerdon says it occurs. I have even specimens of true *speciosus* from the *plains* of Tipperah. Thence, it appears in Midnapore, Chota Nagpore, the Tributary Mehals, and the northern portion of the Ganjam District (Jerdon) and Sumbhulpoor, the most eastern of the

* Mr. Sharpe remarks that, to judge by dimensions given by Mr. Ball, there can be little difference in size between Chota Nagpore and Himalayan examples—as the former are only, I believe, the latter on their cold weather migration this may be admitted.

Central Provinces' districts, but west of this I have never seen or heard of it, and, as I said before to the best of my belief, it never goes near Central India.

11.—Pericrocotus elegans, *McClell.*, P. Z. S. 1839, 156.

This species is a minature of *speciosus*. McClelland, when first describing it, laid much stress on the greater "flatness of the crown, which brings it nearly on a plane with the upper mandible." I have never been able to compare *fresh* specimens of the two, and therefore cannot speak positively on the subject, but must confess that I have not observed any marked difference in skins in this respect.

Like *speciosus*, the first two primaries in the adult male, and the first three in the female and young male, alone want the bright patch on the outer webs.

No doubt there *is* a distinction in the tails; in that out of 26 adult males examined, in every one the outer webs of the tail-feathers were red, whereas only three out of 27 *speciosus* had any red on the outer webs of the middle tail-feathers. Again, taken as a body, the backs of the females are somewhat darker, and the red of the males somewhat more flammeous. With me, however, the validity of the species rests in the difference in size coupled with distinct geographical distribution. I have picked out of 30 specimens, the finest birds, and their wings measured :—

♂'s.—3·7; 3·6; 3·7; 3·6; 3·7; 3·77; 3·6.

♀'s.—3·7; 3·75; 3·62; 3·5; 3·8; 3·6; 3·6.

This difference, coupled with a fully corresponding difference in bulk, (*speciosus* must weigh nearly double what *elegans* does), renders it very unlikely that the birds should interbreed in a wild state, and in my opinion justifies specific separation, quite as much as, in fact more so than in the case of *Pratincola bicolor* and *caprata*, *Hemicircus canente* and *cordatus*, and a dozen more, universally received pairs of species. I would not object to quash all these and with them *elegans*, but I object to the illogical way in which what is made sauce for the goose is not accepted as sauce for the gander, and so long as other similar diminutives are maintained I shall continue to uphold *elegans*.

Of this species, I have specimens from the western portion of Assam, and thence right up to Sudya at the extreme east of the Province, from Shillong, (Khasia Hills), N. E. Cachar, *Hill* Tipperah, (*speciosus* occurs in the *plains* in the cold season) and throughout the Tenasserim Hills to the extreme south at Malewoon.

In default of specimens, I cannot speak positively; the number of plain primaries may differ, or there may be other small differences, but *primâ facie* P. FRATERCULUS, Swinh., *Ibis*., 1870, p. 244, described as a small race of *speciosus*, with the wing 3·8, from Hainan, and which Mr. Swinhoe says he has seen from, Siam and the *Khasia Hills*, can be no other than *elegans*.

12.—Pericrocotus andamanensis, *Tytler*. *Beav*., *Ibis*. 1867, p. 322.

The markings on the primaries separate this at once from *speciosus* and *elegans*. I have examined over 50 specimens.

In the adult *male* there is no red patch on the outer webs of the *three* first primaries; in the adult *female* and *young* male there is no yellow patch on the outer webs of the first *four* primaries.

Besides this, this species differs from *speciosus* in its much smaller size. Wings that I measured of my finest specimens varied as follows:—

♂'s.—3·67; 3·8; 3·6; 3·6; 3·78; 3·63; 3·6; 3·73; 3·65; 3·7.
♀'s.—3·5; 3·55; 3·65; 3·67; 3·63; 3·6; 3·6.
♂'s. juv.—3·65; 3·57; 3·68.

Again in both sexes, the red and yellow of the back goes less far up the back than in either *speciosus* or *elegans*. I remarked this, I find, long ago (S. F., II., p. 203), but having quite forgotten this noted it again, now when I had my entire series of the three species out for comparison.

Again in the females, the orange yellow of the lower parts, rump, and forehead is decidedly more orange than in the other two species, and the grey of the backs is usually darker than in either.

Very rarely in this species in the male a portion of the outer webs of the central tail feathers is red.

The bills in both sexes are, *I now* think, *more* than proportionally smaller than in *speciosus*.

This species is strictly confined to the Andaman group. No specimen has ever yet been procured in any part of the Nicobars.

13.—Pericrocotus flammifer, *Hume*., S.F., III., 321 *n*.

This species like the preceding has no colored patch on the first three primaries in the adult *male*, or in the first four in the *female*. I have seen no young males as yet.

In colour the male approaches *flammeus*. The outer webs of the central feathers appear to be always red. In colour the female is more like those of *speciosus* and *elegans*, with

more yellow on the forehead, and of a much more orange yel-
low below than the female *flammeus*.

The wings of my specimens measure—♂'s, 3·5; 3·47. ♀'s, 3·35; 3·42.

A very fine male measured in the flesh—L., 7·5; Ex., 11·12; T., 3·1; W., 3·5; Ts., 0·62; B.f.g., 0·82.

For the size of the birds the bills are very large and coarse, *very* much larger than in *brevirostris*, *neglectus*, *igneus* or what I take to be the true *ardens* of Boie. *apud* Bp.

This species is probably the *P. ardens* of Lord Walden from Sumatra, with the wing 3·5, (*Ibis*, 1873, p. 310,) but as yet we have not procured it in the southern portion of the Malay Peninsular, but only at Bankasoon at the foot of the Hills, at the extreme south of the Tenasserim Provinces.

The true ARDENS I take to be the birds figured by Salvadori, Uccelli di Borneo, Tav II, and described by him at p. 143, of which he gives the dimensions of four specimens as—
L., 6·55; T., 2·97; W., 3·16; Ts., 0·6; B., 0·51.

This may possibly be the "*flammeus*" of Temminck in part, and is doubtless the bird to which Mr. Wallace referre (P. Z. S., 1863, p. 493) when in describing his *exul*, which has a wing of 3·25, he speaks of it being *larger* than *flammeus* of Temminck—the true *flammeus* being of course a much larger bird than either *exul* or *ardens*.

We killed at Johore, the extreme southern state of the Malay Peninsular, a female answering to Salvadori's description, with the wing 3·18, but with an appreciable olive-green shade on the grey of the back. This differs conspicuously from the female of *flammifer*, by its smaller size, *much* smaller bill, by the olivaceous shade on the grey of the back, by the more olivaceous yellow of the rump, by the smaller extent and diminished brightness of the orange of the forehead, which is merely a frontal band extended on either side over the lores, and so *far as the imperfect wing* (the bird had just moulted 18th August, but the earlier primaries are not yet full grown) enables me to judge by lacking on only the first three primaries the yellow patch, and having even on the third a conspicuous yellow line.

This is clearly a distinct species. I believe it to be the true *ardens*; anyhow there are two species quite distinct from *exul*, *igneus* and *minutus*, Tem. *ap.* Strickl., and even more so from *flagrans*, Boie *apud* Bonap, if the latter's diagnosis is correct, and if not it must be rejected, so that two names are wanted. Those who identify the larger bird with *ardens* must call it so, and may call the smaller one, described and figured by Salvadori, *loc. cit.*, *P. subardens*, nobis. Those who agree with Salvadori and myself must call the larger bird *flammifer* an

the smaller *ardens*, or perhaps *xanthogaster* if no distinct species turns up in Sumatra.

14.—Pericrocotus flammeus, *Forst.*

Penn. Zool. Ind., 25 to 15. *Gould.* B. of As., Pt. II., Pl. 4. *Jerd.* B. of I., I., 420, No. 272. Ill. Ind. Orn., Pl. II.

In this species neither sex has any coloured patch (I have examined 52 specimens) on either of the first four primaries, but out of 36 males two have a hair line of red on the fourth primary. Mr. Sharpe, (S. F., IV., p. 207,) seemed of opinion that this was not a constant character, but I have found* it so in 52 specimens, and I must maintain that either the wings he examined were imperfect, or that the birds were not really *flammeus* from Southern India and Ceylon, where alone the species occurs. As far as mere colour goes, I too, like Blyth, have and have seen specimens of *elegans*, not distinguishable from others of *flammeus*,† though taking a lot of each species, from known localities, there can be no doubt that the tint of *flammeus* male is more fiery than that of either *speciosus*, *elegans*, or *andamanensis*, from all of which the number of plain primaries in the male at once distinguishes it, as also from *flammifer* which approaches it nearest in tint.

The females cannot thus be distinguished from those of the *two* last-named species, but they differ in the less extent of the orange or yellow on the forehead, in the darker grey of the back, and in the clearer and purer yellow of the lower surface.

Wings of this species that I measured are as follows :—

♂'s—3·6; 3·62; 3·7; 3·6; 3·72; 3·7; 3·6; 3·68; 3·75; 3·73; 3·6; 3·7; 3·6.

♀'s.—3·45; 3·45; 3·6; 3·5; 3·65; 3·7; 3·6; 3·47; 3·55; 3·45; 3·6; 3·6.

I dare say that to many there will appear a great deal of hair splitting in what I have written about the different species, but I have studied the Indian members of the group now carefully, with by far the largest series of properly-sexed,

* See also my remarks on this point, S. F., IV., p. 394.

† I found 2 specimens of ♀ *elegans* from Hill Tipperah, in my own collection, labelled *flammeus* by *myself*.

The *only* clear difference in these two birds, except in the 3 plain primaries of female *elegans*, and the four plain ones of *flammeus*, consisted in the two misnamed birds having a great deal more orange on the forehead than female *flammeus* ever has. As a rule the yellow on the rump is more extended and more orange, and the yellow generally, especially on the tail feathers, is more orange in ♀ *elegans* than in *flammeus*, but in the case of these particular two, to say the truth, very indifferent specimens, these differences were not appreciable, and thus while a lot of typical males and females from Hill Tipperah had been correctly labelled *elegans*, these two (I had not studied the primaries in those days) had gone down as *flammeus*, which, to a cursory glance, they more resemble than they do typical *elegans*.

dated, and placed specimens ever united in one collection, and I am confident that sooner or later independent research will confirm my views.

Flammeus is essentially a bird of the *Hills* of Southern India and Ceylon. In the Hills of Ceylon, the Assamboo Hills, and their continuation, the Cardamum Hills, the Western Ghats, as far north at any rate as Khandalla, whence I have specimens, the Pulneys, Anamallis and Nilgherries, the bird is common, and in the cold season it may even be found at some little distance from the bases of these in convenient jungles and on the Malabar coast to the very shores of the sea, but it is in no sense a plains bird, and never occurs in India I believe in the open country at any distance from one or other of these Hill series. As regards Ceylon I cannot speak.

Nearly allied to this species appears to be P. Exul (*non vidi*) of Wallace, (P. Z. S., 1863, p. 492), from Lombock, and, if really identical, East Java and Banda.

This species has a second wing spot; it appears to have the coloured patch in both sexes (I go by the description) on all but the first three primaries.

The wing band is described as "narrowing on the secondaries and suddenly broader on the tertiaries" wherein, if this be correct, it differs from all the Indian *Pericrocoti*.

Its dimensions are given—

L., 7·5; W., 3·25; T., 3·62; B. at front, 0·5. So that it is considerably smaller than the true *flammeus*, though larger than both *igneus* and *ardens (apud nos)* one or other of which, but probably the latter, seems to have been the species referred to by Mr. Wallace as *flammeus* of Temminck.

Remarks upon Phasianus insignis.

By D. G. Elliot, F. R. S. E., &c.

Perhaps it may seem to be rather late, and also somewhat unnecessary at this time, to discuss the question as to the existence of two species of Pheasants in Turkestan and Yarkand, since M. Severstov has procured, and made known to ornithologists under the name of *P. chrysomelas*, the exact locality of the bird described by me some years since as *P. insignis*. But as Mr. Scully, in a late volume of Stray Feathers, has desired to know the differences that exist between this bird and the *P. Shawi*, and which induced me to describe them as distinct, and as the plates in my monograph do not seem to be sufficient to exhibit these differences, (although they were drawn by the greatest delineator of animals living,

and who fully appreciated that he had two very distinct species before him), I will endeavour, as clearly and briefly as possible, to state the characters by which *P. insignis* may be recognised, so that Indian Ornithologists, who may perhaps penetrate the localities where these splendid birds are found, will, through the medium of STRAY FEATHERS, be able to recognise the two species without difficulty.

I will remark, *en passant*, that it is very evident on reading Dr. Scully's article that Mr. Hume was perfectly correct in stating his belief that but one species was represented among the examples collected by Dr. Scully, all of which were undoubtedly *P. Shawi*, and I am certain that, if specimen of *P. insignis* had been with them, Dr. Scully, who has a quick eye to detect different characters, would have recognised it at once.

It certainly was unfortunate that the skins brought to England by Mr. Shaw were so much mutilated, and that the heads were absent, (although the entire bodies and tails of both sexes were entire). This caused me to suppose that *insignis* had no ring about the neck, as no white feathers were visible. This view was not so entirely erroneous, however, as may be imagined, for although the *adult* male has a narrow incomplete white ring, yet the young male, or rather the male when not absolutely fully adult, as exhibited by specimens brought to London by Mr. Severstov, and now in Mr. Dresser's collection, is without this conspicuous mark. I am inclined to think that at no time does this ring become as broad and noticeable as it is in *P. mongolicus*, and very likely varies greatly in extent among different individuals even in adult birds, and has not much importance as a specific character.

But to the differences between the two species. On placing them side by side, the first thing that will attract the observer's notice, is the size and colouration of the flank feathers. These in *insignis* are very much broader than those of *Shawi*, of a most brilliant golden orange, with the entire end of each feather covered with bright metallic green. These feathers in *Shawi* are golden brown, with a blue spot on the tips, more like the flanks of *P. colchicus*, though much more brilliant. I think my plates do show very clearly these differences of the flank feathers, as do also those published by Mr. Gould in the *Birds of Asia*, Part 28, from drawings by Mr. Wolf, of *P. Shawi* and *P. insignis*, the latter erroneously called *P. chrysomelas*.

The next point is an important one, and here I feel I must apologise, for although Mr. Wolf was very careful to exhibit the character in the drawing, I through some inadvertence, omitted to mention it in my description. It will be noticed that, among the scapulars of *P. insignis*, one

feather is drawn down over the white shoulder, so as to make it as conspicuous as possible. The centre of this along the shaft for two-thirds its length is entirely BLACK. Now I do not know another species of true Pheasant, by which I mean those species restricted to the genus *Phasianus*, that has this character—this part of the feathers in all of them, except *insignis*, being white or buff, and this difference alone is sufficient to detect *insignis*. This was the first point examined by me when I saw the specimens brought by M. Severstov, and I found them to exhibit as the figure exhibited so prominently in my plate. Being so very distinct from *P. insignis*, it will be very difficult to define wherein they differ in the color of the plumage, and the ring on the neck is evidently not always developed by M. Severstov's specimens. The black centre to the feathers, mentioned above, probably escaped Mr. Gould's notice, as he does not mention them in his article.

The under tail-coverts of *insignis* are chestnut tips washed with *shining green*, those of *Shawi* are red. Dr. Scully's examples did not have this metallic lustre, which might have shaken his view as to *insignis* being present among his specimens, though perhaps young birds may not exhibit much of it. The feathers of the breast of *insignis* are so broadly tipped with metallic green as to give to this part the appearance of being almost wholly of this colour; that of *Shawi* is chestnut, the feathers margined with blue, but in contradistinction to *insignis*; the general appearance is chestnut with a metallic lustre. The tails of the two species are totally different; that of *P. Shawi* being rufous brown with black cross bars next the shaft, but *not on the same line on both webs*, continued to the outer edge by a chestnut bar. The rectrices of *P. insignis* are reddish-brown, barred *regularly* with black; these bars much narrower and more numerous than those of *Shawi*.

I think the above points are sufficient to enable any one to recognise the two species. That there are two M. Severstov's perfect specimens completely demonstrate, and causes Mr. Gould's effort to prove the contrary by publishing Dr. Scully's article entire, rather amusing, and I am the more gratified that it has been proved they exist, from the fact, that when I described them, with the exception of Mr. Wolf, not many of my brother ornithologists in England, I believe, thought that there were really two species among the specimens brought by Mr. Shaw.

I am not indebted to M. Severstov's specimens in any way for the characters here given, but they are those originally observed in the types of my species, which are now in the collection of the Royal Zoological Museum at Stuttgart, Wurtemburg.

Notes on Captain Legge's paper on additions to the Ceylon Avifauna.

By A. Whyte, F. Z. S., &c., of Messrs. Whyte & Co., Kandy.

I beg to offer the following remarks on a paper of Captain Legge's which appeared, S. F., IV., p. 242.

78.—Glaucidium malabaricum, *Blyth.*

A Small-eared Pygmy Owlet came under our notice about four years ago. It was of a yellowish brown color, and a good deal mottled with white about the wings and scapulars. This specimen was shot by J. R. Hughes, Esq., Kitoolmulle Estate; another of the same species was collected by H. V. Masefield, Esq., on the 11th April this year, and we cannot say if this bird is *G. malabaricum* or not until further examination.*

181.—Brachypternus intermedius, *Legge.*

We believe the Editor is correct as regards this bird. Specimens of *B. chrysonotus* vary very much indeed, and a long series of these from the Sambul district puzzled us much at first.

62.—Phodilus badius, *Horsf.*

The first specimen recorded from Ceylon, *viz.*, the one purchased from us by Mr. Neville and sent to the Editor of this Journal, was collected by us, not far from Kandy: a second specimen was captured in a nest in a hole of a tree along with three young ones, in November 1876, in the North Kukul Korab Valley, by R. B. Hector, Esq., of Mahavema.

A third specimen has since passed through our hands in February this year, from Ratota, and was collected then by E. G. Reeves, Esq. This Owl is a very distinct species, and could not be confounded with any other species of Ceylon Owl.

265.—Tephrodornis ponticeriana, *Gm.*

The Wood Shrike found in Ceylon is a migrant to the Kandy Hills during the N. E. Monsoon.

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* It was probably a *Scops—S. pennatus.*—Ed., S. F.

357.—Oreocincla pectoralis,* *Legge*.

We have never met with this Thrush, and Mr. Thwaites has the full merit of its discovery. Mr. Neville's bird *O. Gregoriana* was collected by us, and the Editor's remarks as to the reliability of the information procured from us, are refreshing. Both *this bird* and several *specimens of Batrachostomus punctatus* were collected in *Ceylon*, and we are sure that the Editor cannot substantiate a single instance of our ever having misled † any one as to the locality in which we have collected our specimens. We in fact confine our work entirely to the Fauna of Ceylon, and deal in no foreign specimens. Our Kandy Owl bird is by no means very rare, and I have full notes regarding its discovery, habits, &c.

404 *bis*.—Pomatorhinus melanurus, *Blyth*.

There can be little doubt, we think, that we have two species. The bill of the Hill bird differs much from that of the low country one.

59 *bis*.—Baza ceylonensis,‡ *Legge*.

This bird was discovered by us *eight years ago*, a pair having been shot by one of our collectors, not far from Kandy.

* At the time, I wrote to Captain Legge that this supposed new species must be the female of *Turdulus Wardi*; it seemed, however, too absurd that he should describe, as new, so common and well-known a species, and I dismissed the idea. But to-day, taking out a series of females *and young males* of *T. Wardi*, and comparing them with the description of *pectoralis*, I am unable to discriminate this new species, and I much wish Captain Legge would point out to us clearly wherein the new species differs.—Ed., S. F.

† I never imagined that Messrs. White of Kandy were in *any way* dishonest, or that they ever *wilfully* misled their customers, but I certainly did believe that they were mere dealers, who purchased any specimens brought to them that seemed likely to yield a profit, accepted the statements of the vendors without close investigation, and labelled their specimens accordingly.

This had been repeatedly stated to me by others, but it was explicitly written to me, as a patent and universally known fact, by a gentlemen who was then, and had for some time previously been residing in Ceylon, who possessed, as it seemed, exceptional opportunities of acquiring a correct knowledge of the facts, and who had apparently no possible bias in the matter.

The letters, testimonials, and certificates forwarded to me by Messrs. Whyte, represent a totally different view of the case. They show that Messrs. Whyte and Co. take a lively personal interest in Natural History, in which they have made many discoveries, and "are trustworthy and intelligent ornithologists, who can have no object in deceiving the public," and deal solely and entirely in specimens obtained in the island of Ceylon.

This being so, I take the earliest opportunity of thus repairing any injustice that (acting on explicit and apparently reliable information) I may have done them, and of expressing my regret if anything I have said, (although in all good faith and without any idea of injuring them,) has in any way wrongfully prejudiced their interests.—Ed., S. F.

‡ I find great difficulty in believing that this is really a new species. I cannot help thinking that it is only *sumatrensis*. If, however, really distinct from this latter, then I apprehend it will prove identical with my *incognita*, which I have been on the whole inclined to identify with *sumatrensis*, though its plumage agrees better with the supposed *ceylonensis* than with any available description of *sumatrensis*.—Ed., S. F.

Since then three more specimens have been collected by us, one of which Captain Legge *obtained from us*.

This bird puzzled us for years, as only one *Baza* (*lophotes*) had been recorded by Layard, Kelaart, Holdsworth, &c.

Now as *Baza lophotes* has never since been procured in Ceylon, we think it not unlikely that this was the one recorded as *Baza lophotes* by former writers. When in England last year we brought this to the notice of Mr. Sharpe, of the British Museum, and also of Mr. Holdsworth. Here again Mr. Legge, *though under a promise* to quote us in the case of rare or new species obtained by him from us, ignores us altogether in connection with these late discoveries, several of which are in reality ours.

Nisaetus pennatus, *Gm.*

Here again is a discovery of ours made years ago. It was from us that a specimen of this Eagle was obtained by Mr. Legge, yet without the slightest recognition of this fact. He says:—"*My* specimen is an adult male, and was killed in the upland of Doombera near Kandy."

This is the very specimen he had from us, and which was collected by ourselves.

Petrocossyphus cyaneus, *Lin.*

As stated by Captain Legge, Mr. Thomas Farr has the merit of discovering this bird. We have seen no example except the first specimen procured by Mr. Farr at Kaduganava and prepared for him by us.

Some remarks on the Indian Species of the Genus Volvocivora.

Volvocivora neglecta.

Intermediate in colour between V. melaschistus *and* V. melanoptera *vel* avensis, *but much smaller than either; wing in the largest male* 4·17. *Outermost tail feather only, at most,* 0·75, *and generally only about* 0·55 *shorter than central tail feathers.*

There is a small race of Cuckoo Shrikes which I have only yet met with in the extreme south of the Tenasserim Provinces, which I cannot identify with any known species, and which I think it well to distinguish under the above name. I have

numerous lovely specimens of this little species, males and females, old and young.

The following are the dimensions recorded in the flesh of an old male in perfect plumage :—

L., 8·12 ; E., 13·0 ; T., 3·55 ; W., 4·1 ; Ts., 0.76 ; B.f.g., 0·85.

The lores are blackish dusky ; the cheeks and ear-coverts are blackish slaty ; the entire upper surface of the bird, including scapulars and lesser wing-coverts, the chin, throat, upper breast and sides of the neck, are of beautiful uniform blue grey, paler than in the palest female *melaschistus*, but darker than the male *cærensis*. The colour is slightly darker on the crown, where as in other species there is a faint indication of darker striation, and it is slightly paler on the rump and the upper tail-coverts ; the ear-coverts are duskier, but scarcely darker than crown or throat ; the lower-breast and abdomen and the wing lining are the same colour as the rump, becoming paler towards the vent, which, with the lower tail-coverts, are pure white ; the wings, except the lesser-coverts, are black, with a distinct greenish lustre. The median and greater coverts, secondaries and tertiaries, are edged with the colour of the back ; the primaries, except the first four or five, are narrowly margined and conspicuously though narrowly tipped with white ; the tail is black ; the central tail-feathers grey for nearly half their length, margined with paler grey throughout, and tipped with nearly pure white ; the whole of the lateral tail-feathers are broadly tipped with pure white ; the external ones most broadly so to the extent of about half an inch ; the exterior lateral tail-feathers are scarcely 0·5 shorter than the central ones, and the penultimate pair are only 0·2 shorter.

Two old females, unfortunately not measured in the flesh, are precisely similar, except that the wings, which measure 3·8 and 3·95 respectively, want the slaty and white edgings and tippings, and also want the grey shade on the tail, while the four central tail-feathers have almost dropped their white tippings. In these two the exterior lateral tail-feathers are 0·6 and 0·65 shorter than the central ones. The male first described is just fresh moulted ; these females must have moulted 4 or 5 months.

The largest bird I have, an old male, has the wings 4·17 ; this still shews on the coverts and quills traces of the slaty edgings, and the white has not yet worn off the tips of the central tail-feathers ; the shortest tail-feathers are nearly 0·7 shorter than the central ones. A younger bird, sexed a female, but I believe a male, as it is larger than all other females (in which the wings are 3·8, 3·9, 3·95) measured in the flesh as follows :—

L., 8·12 ; E., 12 75 ; T., 3·82 ; W., 4·0 ; Ts., 0·75 ; B.f.g., 0·82 ; Wgt., 1 oz.

This has the whole upper surface precisely like the bird first described, but has the ear-coverts and cheeks streaked with greyish white; lores brownish dusky, and the entire under surface greyish white, closely barred with greyish dusky; only the vent feathers and lower tail-coverts pure white with blackish dusky arrowhead subterminal spots. In this bird the external lateral tail feathers are 0·65 shorter than the central ones.

It may be well now to make a brief review of all the Indian species of this genus with which I am acquainted or which have been described.

First we must take V. FIMBRIATA, Tem., which occurs in the Malay Peninsula, and with which I erroneously at one time identified the present species. This species agrees with *neglecta* in having a much less graduated tail than *melaschistus*, but it is a larger bird—the wing in the male being as much as 4·3 to 4·4; it is much darker coloured, the whole head being nearly black, and the tail, instead of being conspicuously white tipped, has only a comparatively narrow grey tipping to the exterior laterals on either side; the rest of the tail feathers are paler towards the tips, but have no regular tippings.

VOLVOCIVORA MELASCHISTUS, Hodgs. (*lugubris*, Sund.) is much larger and much deeper coloured than *neglecta*. The wing in the adult male is often close upon 5 inches, and never I think in the full-grown bird less than 4·75; the exterior lateral tail feather is from 1·2 to 1·6 shorter than the central ones.

V. AVENSIS has already been described, Vol III, p. 93. In this species the colour, sex for sex, is always paler than in our *neglecta*, and, *à fortiori*, much paler than in *melaschistus*. In this the wing varies from 4·2 to 4·4, and the external lateral tail-feathers are about an inch shorter than the middle ones.

Then we have in Tenasserim, most abundant in the hills, but extending in the cold weather to the sea-board and the plains of Pegu, a race of *melaschistus*, which I will, for convenience sake, denominate VOLVOCIVORA INTERMEDIA.

It is very close to *melaschistus*, and as such I originally identified it, but with 24 specimens before me I find that sex being ascertained no specimen of it can be mistaken for a specimen of the corresponding sex of *melaschistus*, but it is much the same size, and the old males are as nearly as possible the same colour as the females of *melaschistus*.

Except as regards colour I can point at present to no unfailing and absolute diagnosis between it and *melaschistus*. But, as a rule, the exterior lateral tail feather is longer. In no specimen is this latter more than 1·2 shorter than the middle one, and as a rule it is only about one inch shorter. Usually

there is a great deal more white upon the tail, the white tippings being conspicuously broader. As to size of bill I can say nothing, for in both this race and the true *melaschistus* the bill varies extraordinarily in dimensions.

The dimensions in the wings of this race are as follows :—

♂'s.—4·8; 4·8; 4·7; 4·45(?); 4·76; 4·84; 4·6; 4·8; 4·45(?); 4·55; 4·5.

♀'s.—4·6; 4·7; 4·75(?); 4·5; 4·55; 4·5; 4·4; 4·55; 4·7; 4·75(?); 4·7; 4·5; 4·71; 4·6.

This is taking all the birds, old and young, together, and estimating the length of wings marked(?) in which the primaries are defective.

I am very doubtful whether this should be considered a subspecies or not, but it is a very distinguishable and perfectly constant race, and not one single specimen of true *melaschistus* has occurred to us throughout the region in which it is so abundant, and it may be best therefore to characterize it by a distinct name.

Then we have two species, supposed to belong to our region, but of which I have never seen specimens, *viz.* :—

V. MELANURA, Hartl. *J. fur O.*, 1865, p. 162, of which the following is the original description—I having only converted the French inches and lines into English inches and decimals, and translated the latin description :

"Very like *V. melaschistus*, but differing in its unicolorous black tail with no white tips, and in its much smaller and slenderer bill.

"Length, 9·6; bill, 0·55; wing, 4·92; tarsus, 0·83.

? "East Indies.

"The description is taken from a specimen in the Leyden Museum, which bears the inscription 'Hindoostan.'"

This species may be a good one, but I have never met with it, and I have specimens of *melaschistus* in which *almost* (but not quite) the whole of the white tippings are absent. As to the bill the way in which this organ differs in different specimens of *melaschistus* is perfectly marvellous, and would be credited by no one who had not picked out the extremes from a very large series.

Then we have—

V. VIDUA, Hartl., *Op. cit.*, p. 163.

"Dusky bluish slate colour, a little paler below with wings and tail black with a slight greenish lustre; under wing-coverts concolorous with the back; tail feathers, except the two central ones, paler margined at the tips, the exterior pair with a small white spot at the tip; rump paler, hardly conspicuously barred paler; under tail-coverts ashy; bill and feet black.

"Length, 7·68; bill, 0·55; wing, 4·12; tail, 3·1; tarsus, 0·74.

"? Araccan.

"Very clearly indicates a distinct species. The description is taken from a specimen in the Bremen Museum."

This species, it will be observed in some respects, approximates to our *neglecta;* but in certain points, and these important ones none of our specimens agree with the description; all our specimens have the tail feathers conspicuously, and the four outer pairs, I may say, broadly, tipped with white; the wing-lining is not concolorous with the back, but paler; the rump is not banded paler in *any* specimen, and the under tail-coverts are white in all.

Lastly, I ought perhaps to mention *Volvocivora Scheerbrandi*, V. Pelzeln, which occurs in Borneo, and might occur in the hilly portions of Tenasserim. I have never seen this species, but it is described as very like *V. fimbriata*, with the black colour of the throat and breast sharply defined and abruptly divided from the paler colour of the abdomen.

A. O. H.

The Ibisauna of Mount Aboo and North Guzerat.

Addenda.

By Captain E. A. Butler, H. M.'s 83rd Regiment.

(*Continued from Vol. 4, p. 41.*)

PART I.

List of species omitted in the former paper.

In this paper I propose, first of all, to mention all of the species not included in my first list (Vol. 3, pp. 437 to 500 and Vol. 4, pp. 1 to 41) that I have met with since that paper was published. Secondly, to comment briefly upon some of the remarks contained therein, making such corrections as further observations have enabled me to do. Thirdly, to append a migratory table showing, so far as I am able, the dates of arrival and departure of all of the migratory species noticed.

This table, although doubtless very imperfect, may, I trust, be found useful and act as a basis in assisting those interested in the subject in finally determining the exact dates upon which the annual migrations take place. The dates given are the result of my own personal observations.

40.—Pandion haliætus, *Lin.*

I was not sure of the identity of this species when my first paper was published (*vide ante* Vol. III., p. 439) but since then I have observed the bird on several occasions on the Burnath river, near Deesa. I only secured one specimen and that being in bad plumage and much mutilated, I did not preserve the skin. It is by no means common and usually appears at the close of the monsoon when there is plenty of water in the river.

65.—Syrnium ocellatum, *Less.*

The Mottled Wood Owl is not uncommon between Deesa and Ahmedabad, occurring in exactly the same localities as *U. coromanda*. It is a very noisy bird and commences to call usually as soon as it begins to get dusk. It has two very distinct calls, one resembling the words "Kook, kook, kook," repeated sometimes, only once or twice, at other times, several times, consecutively with a short interval between each. This note is loud and clear, and can be heard at least half a mile off. The other call resembles the words "Oo-war-r-r, oo-war-r-r, oo-war-r-r," repeated also several times consecutively. This call can also be heard at a long distance. In the breeding season they utter the most hideous cries all night.

134 *ter.*—Alcedo ispida, *Linn.*

On comparing my Aboo King-fisher skins with specimens shot in the plains, I believe that some of the Aboo birds belong to the present species. *A. bengalensis* occurs at Aboo as well, but as many of the skins I collected were referable I believe to *ispida*, I think we may admit the species into our list. The bird I refer to differs from *A. bengalensis* in being a larger bird, with the white cheek patch more conspicuous, the rufous of the breast much more ferruginous and the blue of the back, brighter and less mixed with green.

The measurements of both forms taken in the flesh are subjoined for comparison :—

Length.	Wing.	Tail.	Bill at F.	Bill at G.	Expanse.	Sex.	Locality.
7·	2·75	1·62	1·5	2		♂	Aboo, 22-6-75.
6·75	2·75	1·75	1·56	2		♀	Aboo, 22-6-75.
6·81	2·75	1·62	1·56	1·93		♀	Aboo, 22-6-75.

Irides, blackish brown ; legs and feet, dusky red. In the ♂ both mandibles black. In the ♀ lower mandible reddish, orange.

A bengalensis *Gmel.*

Length.	Wing.	Tail.	Bill at F.	Bill at G.	Expanse.	Sex.	Locality.
6·62	2·75	1·5	1·25	1·68	9·5	♂	Deesa, 27-4-76.
6·56	2·75	1·5	1·34	1·78	9·87	♂	Deesa, 29-4-76.

[I think all these specimens are referable to *A. bengalensis*.—A. O. H.]

441.—Chætornis striatus, *Jerd.*

The Grass-Babbler is not uncommon about Deesa in the rains at which season it breeds. I found a nest containing four eggs on the 18th August 1876. It consisted of a round ball of dry grass with a circular entrance on one side near the top, was placed on the ground in the centre of a low scrubby bush in a grass Bheerh, and when the hen bird flew off, which was not until I almost put my foot on the nest, I mistook her for *Chatarrhæa caudata*. On looking, however, into the bush I saw at once by the eggs that it was a species new to me. I left the spot and returned again in about an hour's time, when to my disappointment I found that three of the eggs had hatched. The fourth egg being stale, I took it and added it to my collection. The eggs are about the size of the [illegible] of *C. caudata*, but in colour very like those of *Franklinia [illegible]chanani*, namely, white speckled all over with reddish brown and pale lavender, most densely at the large end. This bird has a peculiar habit in the breeding season of rising suddenly into the air and soaring about, often for a considerable distance, uttering a loud note resembling the words "chirrup, chirrup-chirrup," repeated all the time the bird is in the air and then suddenly descending slowly into the grass with outspread wings much in the style of *Mirafra erythroptera*. These birds are so similar in appearance when flying and hopping about in the long grass to *C. caudata* that I have no doubt they are often mistaken for that species. I have invariably found them during the rains in grass Bheerhs over-grown with low thorny bushes (*Zizyphus jujuba*, &c.) Whether they remain the whole year round I cannot say; at all events if they do their close resemblance to *C. caudata* enables them to escape notice at other seasons.

483 *bis*.—Pratincola macrorhyncha, *Stol.*

Amongst the *Pratincolas* forwarded to Mr. Hume in my last batch of skins, there appears to have been a bird of this species. Measurements as below:—

Length.	Wing.	Tail.	Bill at front	Bill at gape.	Sex.	Locality.
5·87	3·	2·62	C·43	0·75	♀	Deesa, 12-11-75.

Irides, very dark brown; legs and feet, black; bill, blackish brown, horny at base of lower mandible.

I cannot say whether the bird is common or otherwise in the district whence it was [illegible]ured, as I was not aware of its

existence in that locality until Mr. Hume identified the specimen referred to.—[*Vide ante*, p. 131.—A. O. H.]

593 *quat.*—Budytes flava, *Linn.*

I shot a specimen of the Yellow Wagtail at Sidhpore, 30 miles S. of Deesa, along the Ahmedabad road, on the 7th March 1876. I saw others at the same time but only secured the one specimen. It is not a common bird and like *B. melanocephala* prefers open moist ground to the tanks themselves. All of the birds, I noticed, were upon open grassy maidans in the neighbourhood of tanks. In the month of March the pale lavender head and white supercilium are very conspicuous and render it distinguishable at a glance from any of the other species.

594 *bis.*—Budytes citreola, *Pall.*

The Yellow-headed Wagtail is very common throughout the tank country, and in fact wherever there is water. Unlike *flava* and *melanocephala* it is essentially a tank species, living almost exclusively, I believe, in the immediate neighbourhood of water, along the edges of tanks, rivers, swamps, &c. It always seems to me to be much less terrestrial in its habits than the other members of this group, almost preferring, when flushed to perch upon some low tree or bush, or more often still upon a tall reed or grass stem, to settling on the ground. It is easily distinguished from the other species by its grey back, bright canary-yellow head and the black cowl which separates the grey of the back from the yellow of the head.

696.—Ploceus bengalensis, *Lin.*

Here I must take the opportunity of apologizing for another mistake, as I find now that the birds referred to by me, "Vol. III, p. 495," were *Ploceus bengalensis*. Dr. Jerdon says that the "nest of *P. bengalensis* is non-pensile and has no tubular entrance, or a very short one made of grass and more slightly interwoven than either of the others." Now the birds which I found breeding in the neighbourhood of Milana, 18 miles south-east of Deesa, last rains swarmed in every tank wherever there were high rushes, and the nests which abounded corresponded exactly with the nests of *P. manyar*, described in rough draft of "Nests and Eggs," p. 440. If, therefore, Dr. Jerdon's assertion is correct these must have been *Ploceus manyar*.

At the time I certainly thought they belonged to the same species which proved subsequently to be *P. bengalensis*, but as I unfortunately preserved no specimens I cannot be sure; at all events, as both species occur in Sindh, I think it probable

that the birds I found breeding at Milana were *P. manyar*, skins of which I have since examined in the Frere Hall Museum at Kurrachee, and that it is better therefore to retain that species also for the present in our list.

819 *bis.*—Francolinus pictus, *Var.*

I have lately met with a variety of painted partridge near Deesa, which, if not entitled to specific distinction, must be admitted as a most interesting link between *F. vulgaris* and *F. pictus*. It is a larger and stouter bird than *pictus*, with the black on the neck, throat, and breast much more developed, and lastly has an indistinct, but at the same time very unmistakeable, rufous collar. These are the chief characteristics, but as Mr. Hume has a skin which I sent him last December, he will doubtless be able, if necessary, to add further particulars.

Measurements taken in the flesh as follows :—

Length.	Wing.	Tail.	Bill at F.	Bill at G.	Expanse.	Sex.	Locality.
13·25.	5·75.	4·	·87	1·06.	20.	♂	Deesa, 2·8·76.
13·75.	6 12.	4·	1·	1·06.	20·5	♂	

Irides, very dark brown; bill, black; legs and feet, yellowish salmon.

Measurements of *F. pictus*, killed in the same neighbourhood, are subjoined for comparison :—

Length.	Wing.	Tail.	Bill at F.	Bill at G.	Expanse.	Sex.	Locality.
12·25.	5·5.	3 5.	·93.	1.	19.	♂	Deesa, 8·8 76.

I shot and examined altogether about six or seven specimens, but regret to say only preserved one skin. They were all exactly alike and gave me the idea of being a cross between *pictus* and *vulgaris* both of which species occur in the Beerh from which my specimens were procured. A nest was brought to me at the beginning of the rains, taken in the same neighbourhood, which, from the size and color of the eggs, I should say, in all probability, belonged also to this variety. If considered distinct, I should suggest *intermedius* as an appropriate specific title. The eggs referred to above answer exactly to Mr. Hume's description of the Black Partridge's eggs, "Nests and Eggs." Vol. III., p. 537, but were taken on the 5th August, which is late for *vulgaris*.

[I should take this bird to be a hybrid.

It differs from every specimen of *pictus* that I have seen, in having (1) a marked black line from the nostrils to the anterior angle of the eye, and again from the posterior angle backwards over the ear-coverts; (2) in having a large black patch on the breast; (3) in having distinct traces, all round the neck, of a broad chestnut collar ring; (4) in its larger size generally and larger bill in particular; and (5) in having the throat densely

spotted with black—moreover all round the neck, and on breast (outside the patch) and abdomen there is more black than in any *pictus* that I have seen.

On the other hand, the bird is more of the *pictus* than of the *vulgaris* type, and has the lores, (below the dark line) cheeks, ear-coverts and the broad stripe over eyes and down the sides of the neck, the same uniform bright rufous fawn that *pictus* has; the upper back as in *pictus*, and generally though differing in the particulars above referred to, the whole plumage is of the *pictus* type.—A. O. H.]

[850.—Ægialitis minutus, *Pall.* apud *Jerd.*

I found specimens of this amongst Captain Butler's Deesa Birds.—A. O. H.]

861.—Dromas ardeola, *Payk.*

I shot a beautiful specimen of the Crab Plover this year at Mandavee on the 25th January. It was flying along one of the creeks at low tide when I first saw it, and passed me within easy shot. After flying a short distance it settled by the water side and allowed me to approach along the bare sand to within 20 yards without showing the slightest signs of alarm. On the wing it reminds one of the Jacanas, flying with its legs stretched out behind, much in the same style as *Metopodius indicus*. It is the only specimen I observed, although I remained at Mandavee seven or eight days.

862.—Hæmatopus ostralegus, *Lin.*

I see Mr. Hume mentions the Oyster Catcher, Vol. IV. p. 496, as found along the coasts of Cutch and Kattywar. This is another of the birds I found plentiful at Mandavee in the cold weather. At low tide any number of them may be seen dotted about on the mud banks amongst the numerous other waders.

870.—Gallinago stenura, *Temm.*

The Pin-tail Snipe, so far as my experience goes, is not very common. I shot one on the 24th August 1876, at Milana, 18 miles S. E. of Deesa and obtained a few others later on in the season between Deesa and Ahmedabad. I have carefully perused the letters in S.F. Vol. I., pp. 423 and 496, also Vol. II., p. 335, and Vol. IV., p. 340; and have carefully compared the species with *G. scolopacinus*, and believe now that there is no reliable point except the lateral tail-feathers to guide one in separating the two species. Dr. Jerdon says *G. stenura* is smaller than *G. scolopacinus*, and my measurements of the two species, which are appended, tend to confirm that opinion.

Then again Mr. J. C. Parker and Mr. G. F. Marshall say "it is larger than the common snipe." My specimens, I regret to say, were not weighed; and so I cannot compare weights. As for the other supposed characteristics given by Dr. Jerdon, such as richly barred, lower wing-coverts, shorter beak and slightly shorter tarsus and feet, I hardly believe in the reliability of these, as I laid three Pin-tails this season on a table with eighteen common Snipe, all freshly killed and in the flesh, and although in many instances their characteristics were apparent, still in other instances, I could see no difference between the two species whatever, except in the increased number and attenuation of the lateral tail-feathers. Then again these narrow pointed tail-feathers seem to vary constantly in numbers. In one of my specimens there were seven on each side; in another eight, and in another nine. The greatest number of feathers in any one specimen including the whole tail being twenty-four, in some there were only twenty-two. All of the tails I refer to, seemed to be *perfect*, that is to say where only seven and eight lateral feathers existed, I should not say that any feathers had been shed. Mr. Parker says that *stenura* according to his experience does not frequent the same ground as *scolopacinus*, and both he and Mr. Marshall are of opinion that the flight of *stenura* is more laboured. The birds obtained by me were not only shot upon the same ground as *scolopacinus*, *viz.*, along the edges of rice fields, but, in many instances, the two species rose simultaneously, and it was not, until I had shot the birds and examined them, that I distinguished the species. As regards the flight, I must admit, that occasionally when solitary individuals of *stenura* have risen, the flight has struck me as being more laboured and heavier than in *scolopacinus*, but then again when the two species were on the wing at the same time, I did not observe any difference in their flight. As to the call I have never noticed any difference in the "sea-a-ape" of the two species. In conclusion, after carefully reviewing the whole of the facts before me, I am inclined to think that the lateral tail-feathers are the only safe criterion to go by in separating the two species.

Measurements taken in the flesh as follows:—

G. stenura, *Temm.*

Length.	Wing.	Tail.	Bill at F.	Bill at G.	Expanse.	Sex.	Locality.
10·87.	5·18.	2·75.	2·62.	2·5.	17 75.	?	Deesa.
10·62.	5·12.	2·31.	2·5.	2·43.	17·87.	♀	Do.
10·62.	5·25.	2·56.	2·56.	2·46.	17·25.	♀	Do.
10·75.	5·25.	2·75.	2·5.	2·5.	17·5.	?	Do.

Legs and feet, greenish lead; irides, dark brown; bill, pale horny brown, darkening towards the tip. In some the tail-

feathers number 24, in others 22, (possibly in some only 20). The lateral tail-feathers vary from seven to nine on each side. (Mr. Marshall says six and Mr. Cripps seven. Mr. Le Messurier also says six. "S. F.," Vol. III., p. 380.)

G. scolopacinus, *Bonap.*

Length.	Wing.	Tail.	Bill at F.	Bill at G.	Expanse.	Sex.	Locality.
11·75.	5·62.	3·18.	2·93.	2·87.	18·25.	?	Deesa.
11	4·87.	2·87.	2·87.	2·81.	16·25.	?	do.
11·25.	5·36.	2·87.	2·75.	2·68.	17·75.	♀	do.
10·75.	5	2·62.	2·62.	2·5	16.	?	do.
11·87.	5·5.	3·	2·93.	2·87.	18·25.	♀	do.
11·12.	5·36.	2·62	2·87.	2·81.	17·87.	♀	do.
11·5	5·36.	3·	2·87.	2·86.	17·5.	♀	do.

Legs and feet, pale greenish olive; bill, horny brown; darkening towards the tip; irides, brownish black. Fourteen tail-feathers.

[I must adhere to what I said, Vol. II., p. 294.

"First as regards the bill, of course specimens of the *same* sex of both species must be compared. The females in both species have considerably longer bills than the males, and it will not, therefore, do to compare males of the one against females of the other. Taking a number of *stenura* from all parts of India at random, the bills in the males vary from 2·2 to 2·4, of the females from 2·5 to 2·65; in *scolopacinus* the bills of the males vary from 2·5 to 2·6, in the females from 2·7 to 2·9. I am, therefore, certainly of opinion that the bill of our present species is decidedly shorter, sex for sex, than that of *scolopacinus*. Then as regards the richly-barred under wing-coverts; in *stenura* the axillaries and the entire wing-lining, except the lower greater coverts, are invariably, to judge from my large series, strongly and distinctly barred with blackish brown. This, according to my experience, is never the case in *scolopacinus*. In many specimens there is no barring at all, properly speaking, on the lower surface of the wing, but even where the axillaries are strongly barred, the median secondary lower coverts are always unbarred, forming a white unbarred patch in the centre of the upper portion of the lower surface of the closed wing. I have been unable to detect a single exception to this rule, and believe it to hold good universally."

Now since this was written I have examined hundreds of both species, I might probably say thousands, for I have exa- ing after morning for months during each of mined them morn Calcutta market, into which they are two cold seasons in the in scores, often in h and both brought daily, alway single exception hundred e I have been unable to detect a to what I ha above stated.

Captain Butler's measurements only confirm what I say. All his *stenuras* were clearly females, and so were all his *scolopacinus*, except the fourth on his list, which was probably a male.—A. O. H.]

888.—Calidris arenaria, *Tem.*

Mr. Hume also mentions the Sanderling, Vol. IV., p. 496, as obtained by Mr. James at Mandavee.

909.—Porzana maruetta, *Brisson.*

I find that the English Spotted Rail is one of the rails I referred to as having been probably passed over, "S. F.," Vol. III., p. 440. Mr. James shot specimens at Padária, about 7 miles north-east of Langraij, between Deesa and Ahmedabad, last December, and forwarded two good skins to me for identification. It is not very common, as a rule, but Mr. James informs me that they were tolerably plentiful where his specimens were procured. Like all of the rails they affect swampy ground, rice fields, sugarcane fields, &c., occurring only in the cold weather.

910—Zapornia pygmæa, *Naum.*

I found Baillon's Crake very common at Milana, 18 miles north-east of Deesa, in September, and later on in the season I found it in many of the tanks between Deesa and Ahmedabad. It is by no means shy and runs along the surface of the water over the lotus leaves, &c., much like a Jacana. I fancy it is migratory, as it appeared to me to be scarce at the end of August, and in September I saw any number of them. Six eggs said to belong to this species were brought to me at Milana on the 26th September. They were taken by one of my own nest seekers in a small clump of bulrushes growing out in a tank, and the nest, which he pointed out to me the following day, was built in the rushes about three or four feet from the water and looked for all the world like a miniature nest of *C. chloropus*, being composed of the same material (sedge and rush) and constructed in exactly the same manner. The eggs are much in size and shape like Rain Quails' eggs, and in color correspond exactly with the eggs of *Zapornia pygmæa* described "Nests and Eggs," p. 604, *viz.*, "pale olive stone colour, thickly freckled and mottled with faint dusky spots, and streaks all of which are dull, inconspicuous and ill-defined." At first I doubted that the eggs belonged to this species for the following reasons:—Firstly, of the several specimens I shot, only one or two had the sexual organs at all

enlarged; secondly, the birds did not appear in any numbers until the beginning of September, whereas, had they been going to breed, I should have thought that they would have arrived at the beginning of the rains; thirdly, closely as I searched the tanks daily for about a month, although the birds were plentiful all through September, I did not find another nest. However, taking into consideration all the circumstances under which the nest was discovered, together with the fact that these were the only small rails I observed in the district where the nest was found, and they were plentiful, that the man who took the nest swore that it belonged to this species and pointed out the birds to me himself and finally that the eggs agree exactly with the eggs of *Z. pygmæa*, I believe now that they are genuine.

934.—Ardetta sinensis, *Gmel.*

I found two or three pairs of the Yellow Bittern at Milana, 18 miles south-east of Deesa, during the rains, breeding in a dense bed of tall bulrushes by the side of a small tank. They are not easily flushed, and when flushed they fly somewhat rapidly along the top of the rushes dropping into the reeds again after a short flight. The following extract is taken from my nesting memoranda. "On the 21st August 1876 at Milana I found a nest of the Yellow Bittern. It was built of sedge and rushes near the outside of an immense bed of tall bulrushes, in one of which it was placed about two feet above the level of the water. It was a small nest and not unlike that of a small rail, and contained three eggs, but unfortunately so near hatching, that I only managed to extract the contents of one of them. The eggs are long and cylindrical, in fact, much in shape like night jar's eggs, about 1¼ inch in length and white, faintly tinted with pale skim milk blue." I think, there can be no doubt of the identity of the eggs as there were two pairs of the birds in the clump of rushes in which I found the nest, a single bird rose close to the nest and there was no other bird to be found anywhere near the tank, that the eggs could possibly have belonged to. On the 24th instant I found another nest exactly similar in every respect, but built in a clump of bulrushes growing quite on the outside of the bed. The bird rose off the nest within a yard of me, but there were no eggs, and when I returned a few days later the nest was deserted. I only saw about three pairs of the birds altogether, one of which I shot (♂ and ♀), and a fortnight later when I visited the ground they had all disappeared, so that probably they only remain here during the rains.

956.—Tadorna vulpanser, *Flem.*

[redacted]Shieldrake is another species which has turned up in [redacted]t a place called Nowanugger, since my first paper [redacted]ished. The specimen referred to was obtained by Mr. James (" S. F.," Vol. IV., p. 496.)

PART 2.

Further remarks upon some of the species included in my first paper.

[redacted]ps rufus, *Gmel.*

[redacted]r having since seen a specimen of the bird entered in my [redacted]per under this head, Vol. III., p. 441, I [redacted] think I was mistaken in the identity, and that [redacted] be expunged from the list.

38.—Circaetus gallicus, *Gmel.*

This species is commoner in the plains than my [redacted] remarks, Vol. III., p. 446, would lead people to suppose, [redacted]ing sparingly throughout the whole district.

70.—Urrua coromanda, *Lath.*

This species is also much commoner than I thought, especially in the tank country where its well-known and remarkable call "Wo, wo, wo, wo-o-o-o-o; wo, wo, wo-o-o-o-o, &c." may be heard in almost every large tree from the commencement of the rains up to the breeding reason. They breed in the cold weather commencing about the middle or end of November.

86.—Lagenoplastes fluvicola, *Jerd.*

I have lately met with this species about 10 miles N. of Ahmedabad on the Deesa road.

87.—Cotyle riparia, *Linn.*

I have not succeeded in procuring another specimen of the European Sand Martin, but as the species has since turned up in Sind (*vide* S. F. Vol. IV., p. 507), and as I still feel confident that the bird previously alluded to by me (Vol. III., p. 452) was correctly identified, I think the species should still remain on our list.

98.—Cypselus melba, *Linn.*

Although the greater number of these birds seem to l[eave] plains about the middle of September, still a few r[emain] (usually flying very high) all through the cold weather.

107.—Caprimulgus indicus, *Lath.*

As these birds appear to breed in the hot weather, and as they are at Aboo throughout that season, it is to be surmised they breed on the hill. The paragraph, therefore, at the head of p. 455, S. F. Vol. III., commencing "of course if migratory, &c.," should be erased.

144.—Meniceros bicornis. *Scop.*

As Mr. Huma[e] has entered in his remarks opposite [this] species "occurs nowhere, so far as I know, within the [Indian] plain region with which we are dealing." I may as well [state] that the bird is tolerably common in the tank country [round] of Ahmedabad, occurring wherever there are large trees (*Ficus indica*, &c.) upon the fruit of which it feeds. If Mr. Hume looks over the skins I recently sent him, he will find a fine specimen which I shot last October in the compound of the Travellers' bungalow at Kullole, 15 miles North of Ahmedabad and on the Deesa road.

[This is outside the comparatively desert region with which we were more especially dealing. As you approach Ahmedabad, you meet numerous species unknown to the desert sub-province. —A. O. H.]

219.—Taccocua Leschenaultii, *Less.*

Adverting to my remarks, Vol. III., p. 461, I believe that the bird I refer to is *T. sirkee*, Grey. Mr. Hume, however, can easily decide the question now, as there are two or three good specimens in the last batch of skins I forwarded to him. I find too that I was mistaken in supposing that *C. rufipennis*, and this species migrated during the hot weather as I observed both birds constantly all through the hot weather months last year.

Captain Beavan says (S. F. Vol. II., p. 395) "Jerdon's description of *T. sirkee* is short and unsatisfactory", and I quite agree with him and think it would be a good thing if some one who knows the genus well would kindly publish in STRAY FEATHERS accurate descriptions of all of the Sirkeers pointing out the distinctive characteristics of each species.

[I am sorry to say that, though possessing a tolerable series (though by no means what I require), *viz.*, 53 specimens from the

following localities—Neilgherries, Anjango, Khandalla, Deesa, Aboo, Simla, Mussouri, Dehra Dhoon, Gourgaon, Erinpoora, Ajmere, Sambhur, Kutch, Chunar, Bareilly, Saugor, Kumaon-Bhabur, Chumparun, Seoni, Raipoor, and Sumbulpoor, I am quite unable to satisfy myself of the existence of more than two forms. The one, that I identify as *sirkee*, (to which all Captain Butler's specimens belong) the upper surface of which is more of a sandy or yellowish brown, and the whole lower surface of which is more or less unicolorous, and the other that I call *Leschenaulti*, of which the upper surface is more of an olivaceous brown, and which has the breast and sides of the neck distinctly, in most cases conspicuously, greyer or more olivaceous than the throat and abdomen.

In both these types the colour varies extremely. Some specimens of *sirkee* (apud nos) are of a light yellowish sandy above; others are brown with a strong rufous tinge, especially on the head. Some specimens of my *Leschenaulti* are pale brown above with a greenish tinge, some are a regular olive green brownish no doubt, but still with an olive green the prevailing tinge of the upper surface.

Their dimensions vary greatly, the wings from 5 to 6·5, and the tails and bills almost *ad libitum*, but I have not yet found it possible to combine differences in plumage with differences in dimensions, or even quite satisfactorily with locality. For instance I have typical *sirkee* and typical *Leschenaulti*, both from Dehra Dhoon. Still I may say that all my *Leschenaulti* are from Anjango, the Neilgherries, Khandala, Seoni, Raipoor, Sumbulpoor, Chumparun, the Kumaon-Bhabur, and the Dhoon, while all my specimens from all the other localities above named are *sirkee*. But then, as will have been observed, my series of this *genus* is an indifferent one, and I must have specimens from scores of other localities before I can pretend to give a good account of it. Unfortunately it is a bird people won't send. I have received chests full of *Oriolus kundoo*, *Pitta coronata*, *Irena puella*, and such like, but of dull-colored birds, like *Taccocuas* specimens, somehow but rarely come in.

As for making out Blyth's two additional species, I must confess that at present I cannot.—A. O. H.]

260 *ter*.—Lanius collurio, *Penn*.

I observed several of these birds again last rains in the neighbourhood of Deesa, but was unfortunate in not shooting a single specimen. They only remain for a month or six weeks taking their departure again before the cold weather.

268.—Volvocivora Sykesii, *Strickl.*

I observed a pair of Black-headed Cuckoo Shrikes in low bush jungle at the foot of one of the low ranges of hills about 88 miles East of Deesa on the 25th June 1876.

299 *bis.*—Butalis grisola, *Lin.*

This is another of those European migrants, like *Lanius collurio*, which visits us for about six weeks after the rains. Up to the time that my first paper was published, I had not observed the species myself, but since then I have seen several specimens in the neighbourhood of Deesa and the adjoining country.

323 *bis.*—Erythrosterna parva, *Bechst.*

Mr. Hume was right, I believe, in entering my bird under this head. At all events if he has any doubt he can easily settle the question by referring to the skins I have since sent him.

345.—Pitta coronata, *Müll.*

I saw one of these beautiful birds in a compound in Deesa on the 12th June 1876. It was solitary, and as I only observed it on one occasion, it was no doubt an exhausted bird in course of migration.

351.—Cyanocincla cyana, *Lin.*

The Blue Rock-Thrush is not uncommon in the plains during the migratory seasons, *i. e.*, when they arrive in September and when they leave in March, but they only remain for a few days at each of these seasons as they pass through.

467.—Iora zeylonica, *Gmel.*

I forgot to mention in my first paper that the males of our *Iora* in the breeding season have the head and nape black and the back *yellow edged with black*, as described, Vol. II., p. 459, Vol. III., p. 129, and Vol. IV., pp. 411 to 413. I have never seen them in this district in any other plumage at that time of year. In the cold weather they assume the plumage of the females. Possibly some of the skins I have forwarded to Mr. Hume may prove to belong to Captain Marshall's new species, *I. nigrolutea* as he mentions a specimen from Aboo. [All are *nigrolutea*, v. ante., p. 134. The specimen referred to by Captain Marshall is from *Anadra*, in the plains below and not from Abu itself, where only the common species occurs.—A. O. H.]

562.—Phylloscopus indicus, *Jerd.*

I have observed and shot specimens of the Olivaceous Tree Warbler in Deesa and again 30 miles south, during the migratory season, *i.e.*, towards the end of March.

582 *bis.*—Sylvia cinerea, *Bonap.*

This species is tolerably common in the neighbourhood of Deesa and the adjoining country, arriving about the middle of August and leaving again before the cold weather.

591.—Motacilla dukhunensis, *Sykes.*

With reference to my previous remarks I am now of opinion that this is the *only* species of White-faced Wagtail that visits us during the cold weather.

600.—Corydalla rufula, *Vieillot.*

The Indian Tit Lark remains to breed, as I found a nest containing young ones near Deesa, on the 30th April 1876.

645.—Parus cæsius, *Tick.*

A single bird in low bush jungle at the foot of a low range of hills, about 18 miles E. of Deesa, 25th June 1876. This is the only specimen I have hitherto met with in the plains.

646.—Parus nuchalis, *Jerdon.*

The White-winged Black Tit is not of so rare occurrence as I thought. Since the publication of my first paper I have met with the species constantly in the neighbourhood of Deesa and the adjoining country.

695.—Ploceus manyar, *Horsf.*

I found what I took to be this species very common last rains in the neighbourhood of Milana, 18 miles S. E. of Deesa. They were then breeding and every rush bed swarmed with them. They are also very fond of building in high sarpat grass in moist situations. In localities where this bird is common *P. baya* is usually somewhat scarce. *(vide* my remarks *ante* under *P. bengalensis.)*

716.—Emberiza Huttoni, *Blyth.*

I find that the Grey-necked Bunting is common in the plains in most localities during the cold weather. It seems partial

to rocky ground studded with Euphorbia bushes, Euphorbia hedges, &c.

799.—Pterocles arenarius, *Pall.*

On the march this year between Deesa and Mandavee I found the large Sand-grouse very abundant all the way after we reached Babra, a village about 80 miles S. W. of Deesa.

801 *bis.*—Pterocles senegallus, *Lin.*

Since the publication of my first paper, in addition to the skins from Tookaram,* mentioned Vol. IV., p. 508, I shot one or two specimens of the Spotted Sand-grouse this year in January, when on the march between Deesa and Mandavee at a place called Rajoo, about 90 miles S. W. of Deesa, near the Runn of Cutch.

813.—Gallus Sonneratii, *Temm.*

In my remarks *ante* Vol. IV., p. 5, I should have said "common all along the Aravalli range *in the neighbourhood of Mount Aboo.*" I have not explored any other portion of those hills. The same remarks apply to the next species, *Galloperdix spadiceus, Gmel.*

[Since my former remarks were recorded I have ascertained that both this species and the Red Spur Fowl occur to a certain distance, N. W. from Mount Aboo in the plains country, along the western base of the Aravallis, being common in all the Passes leading from Godwar into Meywar as far as the Deysuri Pass. Neither of them extend to Beaur, but stragglers have been shot as far west as half way between this and the Deysuri Pass.—A. O. H.]

832.—Turnix pugnax, *Tem.*

The black-breasted Bustard Quail is much commoner about Deesa than I thought, but only remains with us, I believe, during the rains, at which season it breeds. I found many nests last year in a grass Beerh about a mile from camp.

844.—Squatarola helvetica, *Lin.*

Although wandering somewhat beyond the limits of the tract of country I am dealing with, still, as the remarks Mr. Hume has kindly appended to my first paper extend to Sindh, Kutch,

* Should be Pokuran, *vide* Vol. V., p. 69.

and K. [redacted] Perhaps I may be excused for mentioning that I fou[redacted] Plover this year somewhat common at Mandavee on the coast of Cutch.

873.—Rhynchæa bengalensis, *Lin.*

Referring to my remarks, *ante* Vol. IV., p. 15, relative to the separation of the males and females of this species in the cold weather. I may mention that it has since occurred to me that the females *may* assume the plumage of the males after breeding, which would account for the number of what I imagined to be males found congregated separately in the cold weather. The young birds of the year are all in the same plumage at first, *viz.*, that of the male, as I flushed several broods last rains and verified the fact myself. The sentence "I have shot a large number of females without flushing a male" should be expunged, as I find on reference to my game books that all of the birds alluded to were in the garb of the male. This tends to support the suggestion I have now brought forward, and it remains to be decided whether the gaudy dress of the female Painted Snipe is seasonal or not.

[I have little doubt that the females lose the chestnut collar during the winter. I find specimens shot early in December which have nearly lost it, others that are losing it. Specimens shot early in January that have entirely lost it; none shot in January that show more than the faintest traces of it. All these specimens, however, differ from the males in having the dark pectoral band still strongly marked, and in having all the wing-coverts visible in the closed wing, green, with very narrow dark transverse bars. One specimen, however, shot in the Dhoon on the 15th of February by Dr. King, and sexed by him a female, is precisely similar in plumage to the male. This may be a bird of the previous year, but it is certainly a female, as its dimensions—(bill at front, 1·9; wing, 5·4; tarsus, 1·9)—show. The males seem never to be quite so large as this.

The changes of plumage in this bird, beyond what the sexed and dated specimens in my museum show, are unknown to me, the species only appearing during the rains in those parts of the country which I have chiefly worked.—A. O. H.]

876.—Terekia cinerea, *Gmel.*

After reading Mr. Hume's note, "Vol. IV, p. 16," under the head of this species, I shot a specimen of the bird I referred to, and forwarded it to him for examination. As it proved

to be *Philomachus pugnax* in dull mid-winter plumage, my remarks about *T. cinerea* occurring inla[redacted] Deesa and Ahmedabad must be expunged, but the [redacted] doubtless occurs on the coast.

The winter and autumn plumage of *P. pugnax* is so very different that I did not recognize the birds observed and shot in the cold weather as Ruffs. Hence the mistake.

905.—Gallinula chloropus, *Lin.*

The Water-hen is very plentiful in the tanks at Milana, 18 miles S. E. of Deesa, breeding in all of the large rush beds during the rains.

907.—Gallinula phœnicura, *Penn.*

I found this species tolerably common also at Milana, but only took one nest, as most of the young broods were hatched off before my arrival at the end of August. The chicks are black.

908.—Porzana akool, *Sykes.*

Very common at Milana, where I took any number of nests during the rains. These birds are closely allied to the Water-hens and remind one much of *G. chloropus* in their habits, especially in the mornings and evenings, during the breeding season, when they come out into the open ground to feed, and walk about jerking their tails exactly in the same manner as that species.

928.—Demi-egretta gularis, *Bosc.*

I observed several specimens of the Ashy Egret whilst marching this year between Deesa and Mandavee. The first I saw was feeding in a river bed between Summow and Oondra, about 18 miles S. W. of Deesa, after which I noticed it on the mud banks of nearly every river we crossed. It was very common at Mandavee, and many of the birds I saw bore evident traces of the immature plumage, showing white feathers in different parts of the body, more especially on the wings, which in many instances had at least half of the primary and secondary feathers pure white.

974.—Podiceps cristatus, *Lin.*

A pair of Crested Grebes were shot by a soldier in my Regiment this year on a tank between Babra and Rajoo, about 80 miles S. W. of Deesa, and were brought to me in the flesh to identify.

995.—Rhynchops albicollis, *Swains.*

As Mr. Hume seemed to doubt "S. F." Vol. IV., p. 32, the occurrence of this species at Aboo, I took an early opportunity of communicating again with Dr. Newman on the subject, and feel quite convinced, in my own mind, both from what he says and from his description of the birds referred to that the birds he shot were *bonâ fide* Skimmers. His description of the bill alone is quite sufficient to identify the species. Where they came from, or how they got there, is more than I can say, but that four were shot on the lake at Aboo is a fact I believe beyond all doubt.

1005.—Graculus carbo, *Lin.*

Jerdon says: "In breeding plumage the *male* bird assumes a lot of white hair like feathers on the neck." A female I procured at Kurrachee this year, in February, apparently in breeding plumage, exhibits the same characteristic.

PART 3.

ANNUAL MIGRATIONS.

	Date of arrival.	Date of Departure.	Locality.	Remarks.
1. Vultur monachus, Lin. ...	.....	.....	Deesa ...	Only occurs in the cold weather.
4*bis*. Gyps pallescens, Hume ...	.....	.....	Deesa ...	May occur all the year round, but I do not recollect noticing it in the hot weather.
8. Falco peregrinus, Lin....	.....	.....	Deesa ...	Only a cold weather visitant.
	.....	15th April ...	Kurrachee ...	
13. Hypotriorchis subbuteo, Lin. ...	14th Sept. 1874 ...	Uncertain ...	Mt. Aboo ...	
17. Tinnunculus alaudarius, Briss. ...	6th Sept. 1875 ...	9th April 1876 ...	Deesa ...	
24. Accipiter nisus, Lin.	29th Sept. 1876 ...	3rd March 1875 ..	Deesa ...	Only occurs in the cold weather.
25. Accipiter virgatus, Tem. ...	.....	.....	Aboo ...	A casual visitant that occurs probably only during the rains and in the cold weather.
	.....	.....	Deesa ...	Only a cold weather visitant.
40. Pandion haliætus, Lin... ...	.....	20th April 1877	Kurrachee ...	
45. Butco ferox, Gmel.	12th Sept. 1875 ...	Uncertain ...	Deesa ...	
51. Circus Swainsoni, A. Smith	2nd Aug. 1875 ...	8th April 1876 ...	Deesa ...	Although most of the birds leave about the beginning of April a few stragglers may occasionally be seen later, *e g.*, I saw single specimens near Deesa on the 10th May and on the 6th June 1876.
	10th Aug. 1876 ...	.....	Deesa ...	
54. Circus æruginosus, Lin.	8th July 1875 ...	30th April 1876...	Deesa ...	Most have left by the end of the first week in April.
	20th July 1876 ...	10th April 1877...	Kurrachee ...	
68. Otus brachyotus, Gmel. ...	25th June 1876 *	11th March 1875	Deesa ...	* This was an exceptionally early bird, and I saw no others until much later in the rains.
82. Hirundo rustica, Lin.	1st Aug. 1875 ...	30th March 1876	Deesa ...	One or two stragglers observed later on the 14th May 1876. I observed swallows at Kurrachee up to the 25th April, but most of them leave earlier as they breed at Jashk on the Mekran Coast, commencing about the beginning of Apl.
85. Hirundo erythropygia, Sykes ...	25th June 1875 ...	30th April 1876...	Deesa ...	A few birds remain in Deesa the whole year round, but most of them retire to the hills during the hot weather, leaving and returning about the dates mentioned.

87. Cotyle riparia, Lin.	.....	.....	Deesa ...	Only a cold weather visitant.
89. Cotyle sinensis, Gray ...	25th June 1876 ...	25th April 1876 ...	Deesa ...	A few birds may remain all the year round, but the majority disappear in the hot weather.
90. Cotyle concolor, Sykes ...	15th June 1875 ...	25th April 1876 ...	Deesa ...	The same remarks apply to this species as to the last.
91. Cotyle rupestris, Scop. ...	.....	.....	Aboo ...	Only a cold weather visitant.
98. Cypselus melba, Lin. ...	14th Aug. 1875 ... 1st Sept. 1876 ...	Uncertain ...	Deesa ...	Most of the birds seem to disappear about the beginning of October, but a few may be seen all through the cold weather until quite the end of February.
107. Caprimulgus indicus, Lath. ...	.....	.....	Aboo ...	Only observed in the hot weather, but it may occur at other seasons.
114. Caprimulgus monticolus, Frankl....	21st July 1875 ...	Uncertain ...	Deesa ...	Not observed after the rains.
120. Merops ægyptius, Forsk. ...	25th June 1875 ...	.....	Deesa ...	Only occurs, I believe, in the monsoon. I believe, I saw a bird of this species flying over Kurrachee on the 16th April 1877.
123. Coracias indicus, Lin. ...	16th July 1875 ... 14th July 1875 ...	7th April 1876 ...	Deesa ...	Retires to the more wooded parts in the hot weather to breed.
? 134 *ter.* Alcedo ispida, Lin.	.....	.....	Aboo ...	Possibly a permanent resident.
147. Palæornis cupatria, Lin. ...	.....	.....	Aboo ...	Only one specimen recorded.
149. Palæornis purpureus, Mull. ...	.....	.....	Deesa ...	Disappears in the hot weather, retiring to the more wooded districts to breed.
188. Yunx torquilla, Lin. ...	20th Sept. 1876 ...	7th April 1875 ...	Deesa ...	
		22nd April 1877...	Kurrachee ...	
199. Cuculus canorus, Lin.... ...	11th May 1875 ...	10th Oct. ...	Deesa ...	This species passes through in May *en route* to the hills, where I believe it breeds, and again after the breeding season in September, during which months it is very plentiful especially in September, when many of the birds are in immature plumage. Probably these are bred on the hills in the hot weather.
205. Hierococcyx varius, Vahl. ...	29th June 1875 ...	20th Oct. 1876 ...	Deesa ...	Only remains, I believe, during the monsoon, at which season I fancy it breeds, but I have never found the nest.
208. Ololygon passerinus, Vahl. ...	.....	.....	Aboo ...	Only occurs, I believe, in the hot weather, and perhaps during the rains.
212. Coccystes jacobinus, Bodd. ...	25th May 1875 ...	20th Oct. ...	Deesa ...	Only occurs in the breeding season.

ANNUAL MIGRATIONS—*Continued.*

	Date of Arrival.	Date of Departure.	Locality.	Remarks.
214. Eudynamys honorata, Lin. ...	25th April 1875 ...	20th Oct. ...	Deesa ...	Like *C. Jacobinus* only found in the breeding season. I found it tolerably common in the neighbourhood of Mandavee in *January*.
246. Salpornis spilonota, Frankl. ...	.....	.....	Aboo ...	Only one or two specimens recorded.
254. Upupa epops, Lin. ...	7th Aug. 1875 ...	20th April 1876 ...	Deesa ...	Most of the birds leave about the first week in April.
	14th Aug. 1876 ...			
260 *ter*. Lanius collurio, Penn.	1st Sept. 1875 ...	6th Oct. ...	Deesa ...	Like the other Western forms that visit Guzerat at the end of the monsoon this species only remains about five or six weeks.
	24th Aug. 1876 ...	.....	Deesa ...	
261. Lanius cristatus, Lin.	1st Sept. 1874 ...	Uncertain ...	Aboo ...	Only met with in the cold weather.
262. Lanius arenarius, Blyth	10th Sept. 1875 ...	20th March 1876	Deesa ...	
	17th Sept. 1876 ...			
273. Pericrocotus brevirostris, Vig. ...	27th Sept. 1876 ...	.....	Deesa ...	A cold weather visitant only.
299 *bis*. Butalis grisola, Lin. ...	30th Aug. 1876 ...	9th Oct. 1876 ...	Deesa ...	The same remarks apply to this species as to *Lanius collurio*.
301. Stoparola melanops, Vigors. ...	21st Sept. 1874 ...	.....	Aboo ...	Only a cold weather visitant.
307. Cyornis ruficauda, Swains. ...	.....	.....	Aboo ...	Only a cold weather visitant.
323 *bis*. Erythrosterna parva, Bechst.	4th Sept. 1874 ...	.....	Aboo ...	
	19th Sept. 1875 ...	10th April 1876 ...	Deesa ...	
345. Pitta coronata, Mull.	12th June 1876 ...	.....	Deesa ...	A solitary bird and only observed on one occasion, so that it probably stopped from fatigue for a few hours in course of migration.
351. Cyanocincla cyana, Lin. ...	19th Sept. 1874 ...	30th April 1875 ...	Aboo ...	Most of the birds begin to leave about the first week in April.
353. Orocetes cinclorhynchus, Vig.	.....	9th March 1877...	Kurrachee ...	Only occurs in the cold weather.
	20th Sept. 1874 ...	.....	Aboo ...	
356. Geociehla unicolor, Tick. ...	19th Sept. 1874 ...	.....	Aboo ...	Only a cold weather visitant.
359. Merula nigropileus, Lafr. ...	.....	.....	Aboo ...	Only occurs, I believe, in the hot weather and during the rains.
441. Chætornis striatus, Jerd. ...	.....	.....	Deesa ...	Not observed in the cold weather, but it may occur nevertheless at all seasons of the year.

475.	Copsychus saularis, Lin.	28th Aug. 1876 ...	31st May 187[illegible]	Deesa ...	I am not sure that a few pair do not remain to breed. Most of the birds leave about the beginning of April.
			7th May 1877 ...	Kurrachee ...	
			1st July 1877 ...	Kurrachee ...	
481.	Pratincola caprata, Lin. ...	7th Sept. 1876 ...	18th March 1876	Deesa ...	
483.	Pratincola indica, Blyth	5th Sept. 1875 ...	11th April 1876 ...	Deesa ...	
		7th Sept. 1876 ...	.....	Deesa ...	
488.	Saxicola opistholeuca, Strickl. ...	4th Oct. 1875 ...	19th March 1876	Deesa ...	Most of them leave about the beginning of March.
489.	Saxicola picata, Blyth...	29th July 1875 ...	14th March 1876	Deesa ...	Although a few birds may be seen as early as the end of July, the main body do not arrive until the beginning of September and most of them leave again about the first March.
		5th Aug. 1876 ...	.....	Deesa ...	
		26th July 1877 ...	.....	Kurrachee ...	
491.	Saxicola isabellina, Rüpp.	3rd Oct. 1875 ...	5th March 1875...	Deesa ...	
		2nd Oct. 1876 ...	6th March 1876...	Deesa ...	
491 *bis.*	Saxicola Kingi, Hume ...	.....	.....	.....	
492.	Saxicola deserti, Rüpp. ...	7th Oct. 1875 ...	1st April 1876 ...	Deesa ...	The main body leave about a fortnight earlier than the date given.
492 *ter.*	Ædon familiaris, Menetries ...	1st Sept. 1875 ...	5th Oct. 1875 ...	Deesa ...	Another of the western forms that visits Guzerat for about six weeks at the end of the monsoon.
497.	Ruticilla rufiventris, Vieill.	5th Sept. 1874 ...	20th March 1877	Aboo ...	
		18th Sept. 1875 ...	7th April 1876 ...	Deesa ...	
514.	Cyanecula succica, Lin. ...	27th Sept. 1875 ...	20th April 1876 ...	Deesa ...	
515.	Acrocephalus brunnescens, Jerdon	.....	8th April 1876 ...	Deesa ...	
516.	Acrocephalus dumetorum, Blyth ...	12th Sept. 1875 ...	7th May 1876 ...	Deesa ...	Most of the birds leave about the middle of April.
520.	Locustella Hendersoni, Cass. ...	20th Sept. 1875 ...	.....	Deesa ...	Only observed during the rains, but it probably occurs all through the cold weather.
553.	Phyllopneuste rama, Sykes	10th Aug. 1877 ...	.....	Deesa ...	
		29th July 1876 ...	9th April 1876 ...	Deesa ...	
554.	Phylloscopus tristis, Blyth	3rd Sept. 1874 ...	29th March ...	Mt. Aboo ...	
			18th April 1876...	Deesa ...	
562.	Phylloscopus indicus, Jerdon	4th Sept. 1874 ...	.....	Aboo ...	
			25th March 1876	Deesa ..	Passing through in course of migration.
581.	Sylvia orphea, Temm	26th Sept. 1875 ...	10th April 1876...	Deesa ...	
582.	Sylvia affinis, Blyth	8th Sept. 1875 ...	10th May 1876 ...	Deesa ...	
		8th Sept. 1875 ...	9th Oct. 1875 ...	Deesa ...	
582 *bis.*	Sylvia cinerea, Bonap.	16th Aug. 1876 ...	9th Oct. 1876 ...	Deesa ...	This is another of those Western forms that puts in an appearance for about 6 weeks at the close of the monsoon.

ANNUAL MIGRATIONS—*Continued.*

	Date of Arrival.	Date of Departure.	Locality.	Remarks.
583. Sylvia curruca, Gmel	20th Sept. 1874 ...	Uncertain ...	Aboo ...	
591 *bis.* Motacilla dukhunensis, Sykes...	29th Sept. 1876 ...	19th April 1876...	Deesa ...	
592. Calobates sulphurea, Bechst.	5th Sept. 1874 ...	30th April 1875...	Aboo ...	
	28th Aug. 1876 ...	.....	Deesa ...	
592 *bis.* Budytes Ravi, Bonap. ...	.....	.....	Aboo ...	
593 *bis.* Budytes melanocephala, Licht.	15th Sept. 1875 ...	30th March 1876	Deesa ...	
	.....	29th March 1877	Kurrachee ...	
593 *quat.* Budytes flava, Lin. ...	14th Sept. 1875 ...	29th March 1876	Deesa ...	
594. Budytes citreoloides, Hodgs. ...	.....	.....	.....	
594 *bis.* Budytes citreola, Pall. ...	7th Sept. 1876 ...	15th April 1876...	Deesa ...	
596. Pipastes maculatus, Hodgs. ...	5th Sept. 1874 ...	17th April 1875...	Deesa ...	
597. Pipastes arboreus, Bechst. ...	10th Sept. 1876 ...	20th April 1876 ...	Deesa ...	
602. Agrodroma campestris, Lin. ...	29th Aug. 1876 ...	28th April 1876 ...	Deesa ...	
604. Agrodroma Jerdoni, Finsch. ...	5th Sept. 1876 ...	6th April 1876 ...	Deesa ...	
605 *ter.* Anthus spinoletta, Lin. ...	.....	.....	Aboo ...	Occurs only in the cold weather.
681. Sturnus vulgaris, Lin. ...	.....	.....	Deesa ...	Only a cold weather visitant.
688. Temenuchus malabaricus, Gmel. ...	.....	.....	Aboo ...	Not found in the cold weather, and I am not sure that it occurs in the rains.
690. Pastor roseus, Lin. ...	24th July 1875 ...	17th April 1876 ...	Deesa ...	
	22nd July 1877 ...	26th April 1877 ...	Kurrachee ...	
716. Emberiza Huttoni, Blyth	.....	29th April 1874 ...	Aboo ...	
	.....	19th April 1876 ...	Deesa ...	
721. Euspiza melanocephala, Gmel. ...	16th Aug. 1876 ...	20th April 1876 ...	Deesa ...	
722. Euspiza luteola, Sparrm.	7th Sept. 1876 ...	29th March 1876	Deesa ...	
		*4th April 1877 ...	Kurrachee ...	*An exceptionally late bird.
738. Carpodacus erythrinus, Pall. ...	7th Sept. 1876 ...	10th April 1875 ...	Deesa ...	
758. Ammomanes phœnicura, Frankl. ...	20th June 1876 ...	.....	Deesa ...	Observed arriving in small flocks. I don't think it remains in this locality during the hot weather.
761. Calandrella brachydactyla, Tem. ...	20th Sept. 1875 ...	29th March 1876	Deesa	
769. Galerida cristata, Lin	.....	.....	Deesa	Only occurs in the cold weather.
792. Turtur pulchrata, Hodgs. ...	.....	.....	Aboo	

795. Turtur suratensis, Gmel. ...	10th May 1876 ...	.....	Deesa ...	In the immediate neighbourhood of Deesa this species only occurs, I believe, in the rains and during the cold weather, but in the more wooded districts it is a permanent resident.
799. Pterocles arenarius, Pall. ...	2nd Oct. 1875 ...	17th March 1876	Deesa ...	Only a cold weather visitant.
800. Pterocles fasciatus, Scop. ...	15th July 1876 ...	15th March 1876	Deesa ...	Only occurs in the rains and during the cold weather.
801 *bis*. Pterocles senegallus, Lin. ...	.....	.....		
829. Coturnix communis, Bon.	27th Aug. 1875 ...	29th April 1876 ...	Deesa	Although birds may occasionally be seen as early as the date mentioned, the main body arrive nearly a month later, dropping in sparingly all through September.
	7th Sept. 1876 ...	.....	Deesa	
	5th Sept. 1874 ...	.....	Aboo	
830. Coturnix coromandelica, Gmel. ...	10th May 1876 ...	30th Feb. 1876 ...	Deesa ...	I believe that the main body of rain quail leave towards the end of the cold weather, arriving again about the beginning of May, about which time they appear in packs. A few I think remain the whole year round. They are most plentiful in the breeding season and the two preceding months, *viz.*, June, July, August and September.
832. Turnix taigoor, Sykes ...	20th June 1876 ...	.....	Deesa ...	I believe this species leaves after breeding about the beginning or middle of October, but it *may* remain through the cold weather.
834. Turnix joudera, Hodgs. ...	25th June 1875 ...	16th March 1876	Deesa ...	Common in the rains, but not found, I believe, in the hot weather and scarce in the cold weather.
837. Houbara Macqueenii, Gray ...	31st Aug. ...	25th Feb. 1877 ...	Kurrachee ...	Only a cold weather visitant. Probably a few remain later than the date mentioned. The end of August is exceptionally early for their arrival. The main body do not appear until about the first week in October. A few pairs were breeding at Henjam Persian Gulf at the beginning of April 1877.
839. Sypheotides aurita, Lath.	15th July 1875 ...	29th Oct. 1875 ...	Deesa	It is seldom that a florican is seen after September and I fancy that most of them have left by the first week in October. Strange to say, a solitary individual was killed last year near Deesa on the 26th April, but that is the only instance I know of its occurrence at that season of the year.
	10th July 1876 ...	9th Oct. 1876 ...	Deesa	

ANNUAL MIGRATIONS—*Continued.*

	Date of Arrival.	Date of Departure.	Locality.	Remarks.
840. Cursorius coromandelicus, Gmel. ...	20th Sept. 1875 ...	1st April 1876 ...	Deesa ...	
840 *bis*. Cursorius gallicus, Gmel. ...	28th Sept. 1875 ...	6th March 1876 ...	Deesa ...	
844. Squatarola helvetica, Lin. ...	.....	.....	Mandavee ...	Only found in the cold weather.
	1st Aug. 1877 ...	31st May 1877 ...	Kurrachee ...	Most of the birds leave about the middle of May.
845. Charadrius fulvus, Gmel. ...	.....	12th March 1877	Kurrachee ...	Only found in the cold weather.
846. Cirrepidesmus Geoffroyi, Wagler ...	20th July 1877 ...	.....	Kurrachee ...	
847. Cirrepidesmus mongolicus, Pall ...	.....	.....	Kurrachee ...	
848. Ægialophilus cantianus, Lath. ...	.....	.....	Kurrachee ...	Only occurs in the cold weather.
849. Ægialitis curonicus, Gmel. ...	7th Aug. 1876 ...	7th May 1876 ...	Deesa ...	
852. Chettusia gregaria, Pall ...	3rd Oct. 1875 ...	10th March 1876	Deesa ...	
853. Chettusia flavipes, Savign. ...	.....	.....	Deesa ...	Only a cold weather visitant.
856. Lobipluvia malabarica, Bodd. ...	.....	.....	Deesa ...	Not observed in the hot weather.
858. Esacus recurvirostris, Cuv. ...	.....	.....	Guzerat ...	Doubtful if migratory or not.
861. Dromas ardeola, Payk. ...	.....	.....	Mandavee ...	Only a cold weather visitant.
	.....	20th April ...	Kurrachee ...	
862. Hæmatopus ostralegus, Lin. ...	.....	.....	Kurrachee ...	The main body of Oyster catcher leave about the middle of May, but a few remain all the year round.
865. Grus cinerea, Bechst.	.....	.....	Guzerat ...	A cold weather visitant.
866. Anthropoides virgo, Lin. {	5th Oct. 1875 ...	14th March 1876	Deesa ...	
{	9th Oct. 1876 ...		Deesa ...	
870. Gallinago stenura, Tem. ...	24th Aug. 1876 ...	Uncertain ...	Deesa ...	
871. Gallinago scolopacinus, Bon. ...	24th Aug. 1876 ...	13th April 1876...	Deesa ...	Does not become plentiful until about the 12th September. In many other parts of India I fancy it does not arrive much before the first week in October.
872. Gallinago gallinula, Lin. ...	23rd Sept. 1876 ...	Uncertain ...	Deesa ...	This species arrives about a month later than the last two.
875. Limosa ægocephala, Lin. ...	.....	.....	Deesa ...	Only a cold weather visitant.

877.	Numenius lineatus, Cuv. ...	15th July 1875 ...	20th March 1876.	Deesa	I saw both of these species in Kurrachee all through the hot weather, but the main body leave about the middle of May.
878.	[illegible]us phæopus, Lin. ...	.....	... .	Deesa	
880.	[illegible]ugnax, Lin. ...	30th July 1875 ...	.....	Deesa ...	
883.	Tringa cinc[illegible] ...	1st Aug. 1877 ...	.....	Kurrachee ...	Arrive in full breeding plumage about 1st Aug.
884.	Tringa minuta, Leisl.	.....	.....	Deesa ...	
885.	Tringa Temminckii, Leisl. ...	5th Augt. 1875...	12th May 1876 ...	Deesa ...	Probably arrives and leaves about the same dates as the next species.
888.	Calidris arenaria, Tem... ...	.....	.....	Mandavee Kurrachee	Some of these Tringas remain until nearly the end of May.
891.	Actitis glareola, Gmel. ...	7th Augt 1875 ...	12th May 1876 ...	Deesa ...	Only a cold weather visitant.
892.	Actitis ochropus, Lin....	28th July 1875 15th July 1876	15th May 1876 ...	Deesa	The earliest to arrive I believe of the whole family.
893.	Actitis hypoleucos, Lin. ...	4th Augt. 1875	12th May 1876 ... 20th May 1877 ...	Deesa Kurrachee	
894.	Totanus glottis, Lin.	.....	.....	.....	This genus remains until quite the middle of May.
895.	Totanus stagnatilis, Bechst. ...	.....	.....	.....	
896.	Totanus fuscus, Lin.	.....	.....	.....	
897.	Totanus calidris, Lin.	.....	.....	.....	
898.	Himantopus intermedius, Blyth ...	.....	.....	Deesa ...	
899.	Recurvirostra avocetta, Lin. ..	.....	.....	Deesa ...	Only a cold weather visitant.
903.	Fulica atra, Lin.	13th Oct. 1876 ...	Uncertain ...	Deesa ...	Only a cold weather visitant.
905.	Gallinula chloropus, Lin. ...	20th Sept. 1876 ...	.....	Deesa	Many of these birds breed during the rains, but I fancy migratory birds come in later, as I noticed an immense increase in their numbers on the date mentioned.
909.	Porzana maruetta, Briss. ...	.....	.....	Guzerat ...	Only occurs in the cold weather.
910.	Zapornia pygmæa, Naum. ...	25th Augt 1876 ...	....	Deesa ...	Only observed in the rains, but probably occurs also in the cold weather.
915.	Leptoptilos argala, Lin. ...	15th July 1876 ...	29th Feb. 1876 ...	Deesa ..	
918.	Ciconia nigra, Lin.	.....	.....	Deesa ...	
919.	Ciconia alba, Belon.	12th Sept. 1876 ...	27th March1876...	Deesa ...	A straggler, and only occurs in the cold weather.
934.	Ardetta sinensis, Gmel. ...	.....	.....	Deesa ...	Only met with on one occasion, & that was during the rains. There were two or three pairs breeding.
936.	Botaurus stellaris, Lin. ...	.....	.....	Deesa ...	Only occurs in the cold weather.
943.	Falcinellus igneus, Gmel. ...	.....	.....	Deesa ...	Only occurs in the cold weather.

ANNUAL MIGRATIONS—*Continued.*

	Date of Arrival.	Date of Departure.	Locality.	Remarks.
944. Phœnicopterus roseus, Geoffr. St. Hill.	.....	20th May 1876 ...	Deesa ...	Three or four were killed by telegraph wires evidently in course of migration.
		25th May 1877 ...	Jashk on Mekran coast ...	A large flock.
		8th June 1877 ...	Kurrachee ...	A single bird flying in a westerly direction.
		5th July 1877 ...	Kurrachee ...	A large flock.
944.*bis* Phœnicopterus minor Geoffr. St. Hill.	.....	.....	Guzerat ...	
945. Anser cinereus, Meyer ...	.....	.....	Deesa ...	Only a cold weather visitant. Geese leave the mouths of the Indus about the middle of March.
954. Casarca rutila, Pall.	.....	.....	Deesa ...	Only a cold weather visitant.
956. Tadorna vulpanser, Flem. ...	.....	.....	Sind and Kattywar ...	Only a cold weather visitant.
957. Spatula clypeata, Lin.... ...	.....	.....	Deesa ...	Only a cold weather visitant.
958. Anas boschas, Lin.	.....	.....	Deesa ...	Only a cold weather visitant.
961. Chaulelasmus streperus, Lin. ...	.....	.....	Deesa ...	Only a cold weather visitant.
962. Dafila acuta, Lin.	12th Oct. 1876 ...	10th April 1876 ...	Deesa ...	
963. Mareca penelope, Lin.... ...	.....	.....	.....	Only a cold weather visitant.
964. Querquedula crecca, Lin. ...	20th Sept. 1876 ...	10th April 1876 ...	Deesa ...	
965. Querquedula circia, Lin. ...	7th Sept. 1876 ...	14th April 1876 ...	Deesa ...	A single bird, shot by shikarris near Deesa, was brought to me on the 6th July 1876, but I have no other record of their occurrence before the date of arrival given.
966*bis*. Querquedula angustirostris, Menetries	.....	.....	Deesa ...	Only a cold weather visitant.
967. Branta rufina, Pall.	.....	.....	Deesa ...	Only a cold weather visitant.
968. Aytha ferina, Lin. ...	.....	.....	Deesa ...	Only occurs in the cold weather.
969. Aythya [illegible] Gould. ...	.....	.....	Deesa ...	Only occurs in the cold weather.
971. [illegible] cristata, Ray... ...	.....	.....	Deesa ...	Only occurs in the cold weather.
973. Mergellus albellus, Lin. ...	.....	.....	Deesa ...	Only occurs in the cold weather.

974.	Podiceps cristatus, Lin. ...	.....	.....	Deesa ...	Only occurs in the cold weather.
980.	Larus brunnicephalus, Jerdon ...	.....	3rd May 1877 ...	Deesa Kurrachee	Only occurs in the cold weather.
983.	Sterna nilotica, Hasselq. ...	.....	20th May 1877 ...	Deesa Kurrachee	Only occurs in the cold weather.
984.	Hydrochelidon indica, Steph. ...	.....	.....	Deesa ...	Disappears in the hot weather.
985.	Seena aurantia, Gray	.....	.....	Deesa ...	Disappears in the hot weather.
995.	Rhynchops albicollis, Swains. ...	.....	.....	Aboo ...	A straggler, recorded as having appeared on one occasion only.
1001.	Pelecanus onocrotalus, Lin. ...	.....	.....	Deesa ...	Only occurs in the cold weather.
1004.	Pelecanus philippensis, Gmel. ...	.....	.....	Deesa ...	Only occurs in the cold weather.
1005.	Graculus carbo, Lin.	.....	.....	Deesa ...	Only occurs in the cold weather.

I fancy all of the migratory Ducks leave the country about the end of March or first week in April, and begin to arrive about the middle of October, excepting Teal, which arrive much earlier.

I noticed this season that a great many of the Waders remained at Kurrachee throughout the hot weather, but in no single instance did any of those which remained, except only the Flamingos, assume the breeding plumage. My opinion is that these are barren birds and birds of the previous year which do not breed the first season. I subjoin a list of the species referred to.

844. *S. helvetica.*—846. *C. Geoffroyi,*—847. *C. mongolicus.*—848. *Æ. cantianus.*—860. *C. interpres.*—861. *D. ardeola.*—862. *H. ostralegus.*—875. *L. ægocephala.*—876. *T. cinerea.*—877. *N. lineatus.*—878. *N. phæopus.*—883. *T. cinclus.*—884. *T. minuta.*—888. *C. arenaria.*—897. *T. calidris.*

All of the above (and probably other species not noted) were common all through the hot weather, except 860, 861, 875, 876, and 878, and of these I only noticed an occasional straggler.

In conclusion, I may mention that I observed a lark last cold weather in the neighbourhood of Deesa, which, I fancy, must have been the Lesser Calandra Lark (*Melanocorypha bimaculata* Menetries.) It was common all through the cold season and associated in flocks with *Calandrella brachydactyla,* rising off the ground when disturbed with a fine rich lark-like note similar to *Alauda arvensis.* I am much to blame doubtless for not having secured specimens, but the fact is, I fancied, I could shoot them at any time and kept putting it off from day to day until, at length, I had to leave Deesa with my regiment in a hurry and had no time at the last to go out after them. However, I have no doubt that some of my successors in that part of the country will procure specimens of the bird I refer to and we shall see then whether my surmise as to the species is correct.

It is very satisfactory to me after my remarks "S. F.," Vol. III., pp. 483 and 484 to find that Mr. Hume at length concurs with the opinions of Mr. Brooks and myself in uniting the two species *Drymoipus terricolor,* Hume, and *Drymoipus longicaudatus,* Tickell. I think there can be no doubt now that *longicaudatus* is nothing but the winter plumage of *terricolor* (Vide "S. F.," Vol. IV., pp. 407 to 410).

Notes on Nomenclature. I.

Very [illegible] impressions seem to prevail as to the conditions under which, in accordance with the British Association rules, generic and specific names, previously otherwise employed, become void.

Yet the rule is extremely clear and simple.

"A name should be changed which has before been proposed for some other genus in zoology or botany, or for some other species in the same genus, *when still retained for such genus or species.*"

This is the rule, the law in fact, binding on all naturalists who adopt the Code.

No name, therefore, whether specific or generic, can be set aside on account of its previous application, unless such previous application has at the time a scientific substantive existence, *i.e.*, has not passed away into the Synonymic Haides.

At the same time, while no name not "still retained for such genus or species" can be set aside by *any one else*, *authors* are advised not, knowingly, to employ terms previously used. The Committee say :—

"Some authors consider that, when a name has been reduced to a synonym by the operations of the laws of priority, they are then at liberty to apply it at pleasure to any new group which may be in want of a name. We consider, however, that when a word has once been proposed in a given sense, and has afterwards sunk into a synonym, it is far better to lay it aside for ever, than to run the risk of making confusion by re-issuing it with a new meaning attached."

Most people would concur in this as a general rule, for the guidance of authors. Though possibly even this might require that certain sets of names, Brehm's for instance, should be absolutely ignored, but this advice to *authors* confers no authority on *others* to meddle with names given, by oversight or design, in disregard of such advice.

"My dears," said the good old folks when I was young, "it is not a nice thing to run away and get married at Gretna Green; you had much better not do it, &c., &c." Very good advice, and deserving general attention, but in no way affecting the validity of the irregular marriages that, from time to time, did, despite all good advice, eventuate at Gretna.

So too here; much better never use, either for genus or species, a previously-applied term, although this may have become a mere synonym, but if you do by accident hit upon such a term, no one else has the right to alter it under the British Association Code.

At page 415, Vol. I., STRAY FEATHERS, Mr. Mandelli defined a very distinct genus under the name of *H[illegible]*.

In the *Ibis* for 1875, Lord Walden alters th[illegible] *pheno-cichla*, on the grounds that Mr. Mandelli's name has been previously employed by Lafresnaye.

But *Heterorhynchus*, Lafresnaye, is not a name "still retained for any genus," being a mere synonym of *Hemignathus*, Licht.

It appears to me that, according to the British Association, Code Lord Walden is wrong and Mr. Mandelli's name must stand.

Mr. Mandelli was very naughty to give such a name, but that is his and his scientific conscience's look out, and even the "Autocrat of the Zoo" cannot legally set the name aside.

In the *Ibis* for 1874 Lord Walden changed Blyth's name of "*punctatus*" for our Spotted Wren, to a name of his own "*formosus*," on the grounds that in 1823 Brehm had applied the term "*punctatus*" to the common European Wren.

Quite unaware at that time that I had the support of the British Association rules, (which I had not then seen) I protested against this injustice to Blyth and said—

"Had Brehm's name *stood* for the species to which it was applied, the proposed change would be correct; but, as a fact the name does *not* stand; it has become a mere synonym is dead for our purposes, and therefore the adjective *punctatus* is again available to characterize some other species of the genus. Blyth did thus utilize it, and his name *punctatus* should, in my opinion, most assuredly stand."

This I now find is the British Association view of such cases, but they would add "it is a pity that Blyth did not take a quite new title, and we advise you never to follow his example in similar cases, but still he having given this name, it cannot be now altered."

Not long ago both Mr. Brooks and Mr. Gould saw fit to alter the name of my *Sturnus nitens*, because that multinominal miscreant * Brehm had once applied the term *nitens* (*and five others*) to the common Starling. But here again they had no *locus standi*. They are British naturalists, bound by all patriotic impulses, to abide by the British Association Code, and under the provisions of this latter my name *nitens* is a good and sufficient one.

But some frivolous individual may possibly object that I myself (S. F., IV., 512) re-named the species "*ambiguus*" and *cui bono*, if the name *nitens* would stand? well, in the first place, I did not then know that I had the British Association rules on my side.

* I use this merely in the literal active sense of creator of bad species. I am not prepared to make any grammatical defence.

hange was not as a protection against the favored elect, who are in a position to sing glorious charter, deny it, &c," but against certain outer barbarians who know not Strickland, neither do they regard the British Association.

Outside the limits of the British Garden of Eden dwell (doubtless wailing and gnashing their teeth) hordes of Zoological bandits, ever on the watch to waylay stray and unprotected species, whom they either murder or else pass off as their own lawful offspring amongst their brother robbers.

It was against the malevolent machinations of these scientific wehr-wolves that I sought by adding a second name to save my poor little ewe lamb of a species. No true Briton could honestly meddle with *nitens*, and even the small and evil intentioned remnant of humanity excluded from that dignified and widely embracing designation could scarcely trample on *ambiguus*.

Is my frivolous interlocutor satisfied? If not, let him at least have the grace to be silent (we have heard quite enough of *him*) and meditate on his own inexpressible stupidity. I have furnished him with the fullest and most soul-convincing reasons, but Providence has, it would really seem, created him as incapable of assimilating these, as Trilobites were of digesting Roast Pork.

Notes on some of our Indian Stone Chats.

THERE can be no confounding our Indian *rubetraoides*, Jameson, (=*Jamesoni*, nobis, in case continental ornithologists refuse to accept Jameson's name,) with the European *rubetra*, when once a series of the two species have been compared.

Rubetraoides, (which so far as I know has never yet been described) has a conspicuously longer and somewhat slenderer bill; has *very* much more white in the tail and the 2nd primary equal to, or, rarely, a *shade* longer than the 7th, while in *rubetra* the 2nd about equals the 5th. In *rubetra* the 1st primary is very small, very narrow, and the 2nd very little shorter than the 3rd; in *rubetraoides* the 1st primary is much larger, and the 2nd from $\frac{1}{4}$th to $\frac{1}{3}$rd of an inch shorter than the 3rd.

I only know of *rubetraoides* occurring in the Punjaub, and during the cold season. I have never heard of its being seen or obtained east of the Jumna. Even in the Punjaub it is scarce, at least I gather this from the fact that no one but Jameson and myself have apparently ever procured it.

He obtained his in the Salt R... my specimens near Goorgaon, and at ... and other places in the Sirsa district, all Cis-S...

The following are dimensions, &c., of a pair measured in the flesh, which I shot at Bhuttoo on the 25th November 1867 :—

♂.—Length, 6·0; expanse, 9·75; tail, 2·12; wing, 3·0; tarsus, 0·97; bill from frontal bone, 0·7; from gape, 0·75.

♀.—Length, 5·5; Expanse, 9·12; Tail, 2·0; Wing, 2·9; Tarsus, 0·93; Bill from frontal bone, 0·66; from gape, 0·7.

♂.—Exposed portion of 1st primary 0·77 long, 0·14 broad; 2nd primary 0·33 shorter than 3rd, and = 7th.

♀.—Exposed portion of 1st primary 0·75 long, 0·16 broad; 2nd primary 0·28 shorter than 3rd, and slightly larger than 7th.

In both the 3rd, 4th, and 5th quills are equal and longest.

The male has mid toe and claw 0·75; outer toe and claw 0·56; inner toe and claw 0·52; hind toe and claw 0·7. In both sexes the legs, feet and bill were *black*, (the bill has *now* faded to *brown*,) and irides brown.

The male has a broad stripe from the nostrils over the eyes and over the greater portion of the ear-coverts, white, with a slight buffy tinge. The lower part of the lores, dusky.

Chin, throat and entire lower parts, including lower tail-coverts and tibial plumes, white, with a yellowish tinge, and a very feeble rufescent tinge on breast and flanks.

Wing-lining and axillaries, pure white, the former slightly mottled with dusky.

Forehead, crown, occiput, nape, back, and scapulars, light sandy buff, striated longitudinally with hair brown.

Rump and upper tail-coverts, white, most of the feathers tinged towards their tips with pale rusty buff.

Primaries and secondaries, hair brown, margined on the outer webs with light buff and tipped with yellowish white, the primaries more narrowly, the secondaries more broadly. Tertiary greater coverts, or perhaps I should call them lower scapulars, pure white.

Tertiaries and greater and median secondary coverts, deep brown, broadly margined with pale, more or less rufescent buff. Entire visible portion of lesser coverts, pale sandy buff. Edge of wing and outer webs of earlier greater primary coverts, pure white.

Tail, hair brown: all the feathers margined on the outer webs and the central ones on both webs, with sandy buff or light yellowish brown—the outer web of the outermost feather almost entirely of this colour.

All the feathers, except the central pair, with almost the entire inner webs, white. The outermost pair have an irregular

subterminal brown band from 0·2 to 0·3 wide on this web, but the rest have only a small patch of brown near the shaft close to the tip—the pair next the centre having the patch rather larger.

There are traces of a dark streak from the base of the lower mandible down either side of the throat, expanding on the sides of the breast; doubtless in breeding plumage this streak and patch are black or blackish.

The females, though smaller, seem to be at this season precisely similar, except that they show the dark streak and patch much less.

I have no idea what the breeding plumage may be like, and though the bird must breed somewhere in Central Asia, I have not yet noticed (though doubtless it may have been so) that it has been described in summer plumage thence.

I hope these remarks will call the attention of ornithologists in North-Western India to this species. I may add for their benefit that, in the winter plumage, both sexes bear a certain *superficial* resemblance to the female *P. lencura*, but this has a shorter and much broader and more triangular bill, has *no white* in the tail, has a mere trace of the conspicuous superciliary band, has no white on the outer webs of the earlier primary greater coverts, has the rump and upper tail-coverts uniform pale brownish rufescent, a wing about 2·6; axillaries and wing lining pale fulvous, instead of pure white, is not nearly so clearly striated on the upper surface, differs in the proportions of the primaries, (2nd=8th, 3rd shorter than 4th.) &c., so that there ought to be no confounding the birds. As for the *male lencura*, which *has* white in the tail, though somewhat less than *rubetraoides*, its black head and throat and brightish rufous breast, and white patches on either side at the base of the throat, in fact *P. indica*, like head and breast, prevent its ever being confounded with *rubetraoides*.

Macrorhyncha female is no doubt very like *rubetraoides* above and below, is much the same size, and has a very similar slender bill, but *macrorhyncha*, female, has no white in the tail, no pure white on the primary greater coverts, not so *conspicuous* an eye streak, a much browner rump, and no white tertiary greater coverts or under scapulars, as *rubicola*, *indica*, *rubetra* and *rubetraoides* have, &c., &c., so that this likewise should not *be confounded* with *rubetraoides*.

At page 131 *(ante)* I reproduced Dr. Tristram's description of *Pratincola robusta*, and suggested that it might be equivalent to *P. macrorhyncha*, Stoliczka.

At that time I was not aware that I had any specimens of the supposed *P. robusta*.

Dr. Tristram's description is by no means a very full or satisfactory one, and he gives no dimensions of bill, tarsus, or toes, but one is left to gather that he separates the species on (1) size, wing, 3; and (2) on the rufous of the breast, extending to the abdomen, and the narrowness of the white spot on each side of the neck.

Examining my collection I found that I had two specimens answering well as regards plumage to Dr. Tristram's description, *viz.*, one from Sikhim, wing, 3·1, and one from Syree (below Simla) with the wing 3·0.

But at the same time I could not help noticing that, besides these two, I had many others in precisely similar plumage, but smaller, and with Captain C. H. S. Marshall's kind assistance I got out all the adults *P. indica* in my collection (125 in number) and measured their wings carefully with the following results :—

MALES.

Number of specimens.	*Length of wing.*	*Localities.*
1	3·1	Sikhim.
1	3·0	Syree (below Simla).
2	2·95	Sudya (Assam); Suddya (Assam).
1	2·92	Sudya (Assam).
3	2·9	Sudya (Assam); Mussouri; Pine forests of Salween, above Pahpoon.
1	2·88	Lower Hazara.
1	2·85	Kusmore (Upper Sindh).
1	2·83	Sudya (Assam).
5	2·8	Almorah; Goga: Sultanpoor, (Oudh); Junction of Chenab and Sutlej; Etawah.
1	2·76	Roree (Sindh).
6	2·75	Shahedulla (boundary of Kashgar); Kusmore, (Upper Sindh); Indus and Ravee junction; Northern Sindh; Mount Aboo; Etawah.
2	2·73	Mussouri; Etawah.
2	2·72	Thatone, (Pegu); Mogul-Serai.
16	2·7	Kotegurh; Native Sikhim; Darjeeling; Kotegurh; Almorah; Petoragurh; Mount Aboo; Sambhur; Goga; Mogul Serai; Etawah; Tipperah; Bankasoon, (S. Tenasserim); Khyketo, (Tenasserim); Mergui, Amoy (China).
3	2·67	Khagan (Cashmere); Etawah; Pabyouk (Tenasserim).
1	2·66	South Andamans.
6	2·65	Kussowlee; Petoragurh (Kumaon); Thatone, (Pegu); Pegu; Tanzeik (Pegu); Mergui.
2	2·63	Mussouri; Northern Sindh.
24	2·6	Khagan (Cashmere); Murree; Verney (Cashmere); Somuda; Kotegurh; Simla; Mogul-Serai; Kussouli; Mahasu (near Simla); Almorah, Almorah, Almorah, Almorah, Almorah, Kumaon; Darjeeling; Etawah; Thatone; Rangoon; Mergui; Prome; Pag-chan (extreme south of Tenasserim); Amoy (China); Andamans.
1	2·55	Valley of Bhagirattee.
1	2·5	Simla.
81		

FEMALES.

3	2·9	Sikhim; Sudya (Assam).
2	2·8	Dehra Dhoon; Etawah.
2	2·75	Native Sikhim; Kusmore (Upper Sindh).
2	2·73	Rohtuk (Delhi Division); Sukker (Upper Sindh).
5	2·7	Etawah; Chunar; Cachar; Mount Aboo; Amoy (China).
2	2·68	Pahpoon (Tenasserim); Etawah.
4	2·65	Jacobabad; Etawah; Etawah; Jhansee.
3	2·6	Kashmir; Wan (Pegu); Amoy (China),
7	2·55	Kashmir; Almora; Almora; Etawah; Dacca; Malewoon (S. Tenasserim); Gourgaon.
12	2·5	Kotegurh; Mussouri; Kussowlee; Kussowlee; Almorah; Almora; Petoragurh; Rangoon; Malewoon (S. Tenasserim); Khyketo; Cawnpoor; Allahabad.
1	2·47	Mahasu (near Simla).
1	2·46	" "
1	2·45	Kojee (Sutlej Valley).
44		

Now the first thing that strikes one is that out of 81 males, 52 have the wings from 2·6 to 2·7, and out of 41 females, 22 have them from 2·5 to 2·6; and generally it seems clear from these figures that the wings of the females *average* somewhere about 0·1 less than those of the males.

In the second place, all the males with wings over 2·9, and all the females with wings over 2·8, are from the Himalayas or Suddya, at the extreme east of Assam, to which in the cold weather a very great number of Eastern Himalayan birds descend. Moreover, all these very large males are more or less in the plumage, which I understand to characterize *robusta*, entirely rufous beneath and with very small white neck spots.

But unfortunately I have several other specimens with wings of 2·6 and upwards, exhibiting quite this same plumage, and after a long and tiring day's work, Captain Marshall and I have come to the conclusion that it is absolutely impossible to make two species out of the 125 specimens before us.

I did think at one time for a few moments that I had got hold of a distinctive character. In *P. indica*, as a rule, the 2nd primary=the 7th, but in the Sikhim, 3·1 bird, I found the 2nd between the 7th and 8th; and in the Syree 3·0 bird, the 2nd=8th; in a Suddya 2·95 bird, the 2nd was between the 7th and 8th; and in a Suddya 2·92 bird, 2nd=8th; unfortunately in the 2nd 2·95 Suddya bird, the 2nd was between the 6th and 7th; in a Suddya 2·9 bird, 2nd=7th, and when I came to examine the mass of the smaller birds I found that, though 2nd=7th was the general rule, sometimes 2nd=8th, and sometimes it was between 7th and 8th, and sometimes between 6th and 7th.

It is clear that with such an unbroken gradation in dimensions, as I have above exhibited, no arbitrary line can be drawn, and those on one side of this called one species, and those on the other, another.

I cannot doubt that my Sikhim and Syree birds fully represent Dr. Tristram's *robusta*, but after the most painfully minute investigation of all those details, out of which specific differences may often be established, I am utterly unable to discover any one point, however minute, except that of size whereby these two specimens may be divided from the rest.

Now it is impossible to draw the line at 3·0, and say these are *robusta*, but the precisely similar 2·95 wing birds are *indica*, or at 2·95 and reject the 2·92, or at 2·92 and reject the 2·9, &c.

All that we can say is, that *almost* all the largest birds exhibit the type of coloration, indicated by Dr. Tristram as the characteristic of his *robusta;* that as the birds decrease in size, this type of coloration grows less and less frequent; and that all the very largest birds are from Assam, the Eastern and Central Himalayas; but it is impossible, in the face of the facts above set forth, to establish a species on grounds like these, and my conclusion is that, if I have rightly identified *P. robusta* (and this seems scarcely doubtful), the form indicated by that name is *not* entitled to specific separation.

If Dr. Tristram can point out any clear and specific diagnosis, well and good; I shall be delighted to test this in my tolerably large series, but if he has already said, all he can in regard to this supposed species, it must I conceive be suppressed.

When I suggested that *macrorhyncha* might be identical with *robusta*, I had not made out what the latter was. Now that I have done so, I find that what I identify as *robusta* has a bill precisely like that of *indica*, larger of course than the bills of small specimens, but of precisely the same shape. *Macrorhyncha*, on the other hand, has a much slenderer bill, very like that of *rubetraoides* and quite unlike that of *indica*.

Moreover, the birds I identify as *robusta* exhibit the pure white tertiary greater coverts or under scapulars (I am in doubt which to call them) which characterise *rubicola*, *rubetra*, *indica and rubetraoides*, whereas these are entirely wanting in the two female *macrorhynchas* I possess.

I therefore entertain no doubt now that *macrorhyncha* is a good and distinct species.

Pratincola Hemprichii is characterized by a good deal of white, very variable however in extent, at the base of the tail. I examined the whole of the 125 specimens above referred to, to see if by chance there was any *Hemprichii* amongst them, but found no trace of white on the tails of any *one of them.*

A few Additions to the Sind Avifauna.

By W. T. Blanford, F.R.S., &c.

I proposed to write out the notes made on the birds of Sind during the last three cold seasons in the form of a paper for Stray Feathers. Time, however, has failed me, and I therefore give the following list of species not, so far as I know, previously noticed in the province. I must leave all details for another time. The numbers are from Jerdon and Hume's catalogue.

1.—Vultur monachus. Seen once near Rohri.

2.—Otogyps calvus. Not uncommon in the hills, west and north-west of Kotri and in the lower hills of the Kirthar range, west of Upper Sind. I also saw it once near Rohri.

5.—Gyps bengalensis. Once seen near Rohri, where this and the two other species were all seen together, (one individual of each,) by the carcase of a goat. I rode within a few yards and clearly identified all three.

39.—Spilornis cheela. A single individual was seen on the Kari Nai.

68.—Asio accipitrinus (*Otus brachyotus*, Auct). A small flock seen (one shot) in the desert of Eastern Sind, near the town of Gadra, in Thar and Pakhar.

72.—Ketupa ceylonensis. Shot on the Gaj river.

74 *sept.*—Scops brucei. A pair obtained near Umarkot.

98.—Cypselus melba. Seen on Miagwan, a peak of the Kirthar range.

160.—Picus mahrattensis. A pair shot near Umarkot in Thar and Paikar. There is also a pair amongst some specimens obtained by my collector, either at Karachi or Kotri. He asserts that he shot the birds at the former locality. Judging by the usual accuracy of his statements, it is more probable that he obtained the specimens at the latter place.

197.—Xantholæma hæmacephala. The well known note was heard at Rohri.

222.—Taccocua affinis (*T. Sirkee*, Var.) A single specimen procured on the Habb River on the frontier of Beluchistan.

386 *bis.*—Pyctorhis altirostris. A single specimen shot at Mangrani between Sukkur and Shikarpur. This is the most interesting addition to the Avifauna of Sind, since *Hypercolius ampelinus*.

It will be seen on reference to Jour. As. Soc., Bengal, for 1876, Pt., II, p. 197, that Major Godwin-Austen has ascertained that the type of this species is fortunately preserved in the British Museum, and he has identified his specimens from

Assam by comparison. My specimen is certainly, I think, of the same species as the Dafla bird, of which there is a specim[illegible] in the Calcutta Museum. Until the type was re-disco[illegible] I was rather disposed to share Mr. Hume's [illegible] IV., p. 505*.

462.—PYCNONOTUS PUSILLUS. Deserts easts of [illegible]

488.—SAXICOLA OPISTHOLEUCA. A single specimen collected at Kotri or Karachi.

490.—SAXICOLA MORIO, Ehr. (*S. capistrata*, Hume *nec* Gould). I think I can now shew conclusively that this is quite distinct from *S. picata*. It is excessively rare in Sind, and I have only shot two specimens, both killed on the same day, February 18th, near Cape Monze.

492 *ter*.—ÆDON FAMILIARIS.

516.—ACROCEPHALUS DUMETORUM.

559.—PHYLLOSCOPUS NITIDUS.

582 *bis*.—SYLVIA RUFA (*S. cinerea*, Auct.)

The above four birds were obtainned for me either at Kotri or Karachi by the collector already mentioned. All must have been procured in the autumn.

591.—MOTACILLA PERSONATA. Common at Jacobabad [illegible] November.

593 *bis*.—BUDYTES MELANOCEPHALUS.†

593 *ter*.—BUDYTES FLAVUS.

Both common; the latter much more so than the former in Upper Sind, about March and April.

681 *bis*.—STURNUS MINOR, *Hume*, S. F., I., p. 207. This is a good species, perfectly distinct from *S. vulgaris*, and locally far from rare. Found common at end of March near Rohri.

716.—EMBERIZA HUTTONI. Occasionally shot in the hilly parts of Sind.

718.—EMBERIZA STEWARTI. A single specimen obtained in the Kirthar range, Upper Sind.

722.—EUSPIZA LUTEOLA. Shot near Rohri in the beginning of April.

756.—MIRAFRA ERYTHROPTERA. Not rare in the desert, east of Umarkot, and I once saw a single bird a few miles north-west of Karachi in the Habb Valley.

761 *ter*.—MELANOCORYPHA BIMACULATA. Not rare in the plains of Upper Sind, and in the desert east of Umarkot.

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* Notwithstanding what is said about the type I adhere to my opinion. Dr. Jerdon never, I believe, described a bird so badly. There has been some mistake about the type. Very likely he got both birds, described one and sent the other home, without carefully comparing them. See, *ante*, p. 116 and *infra*, p. 251.—ED. S. F.

† Wrongly entered in my list as *B. viridis*.—ED. S. F.

910.—PORZANA PYGMŒA. One specimen shot near the Manchar Lake.

Besides the above I believe I once saw—

845 *bis*. CHARADRIUS PLUVIALIS close to Karachi. It is not improbable that the European Golden Plover may occur in Sind, as I obtained it only 200 miles further west at Guadar. *C. fulvus*, however, does occur in Sind, for I once shot a specimen at the Manchar Lake. Another bird which must, I think, be added probably as a rare straggler, to the Sind Avifauna is—

904. GALLICREX CRISTATUS, a skin of which was given to me by Captain Bishop, together with several birds shot in Sind and on the Mekran Coast.

Besides the above, I have obtained several of the birds noticed in Sind by Mr. James and Major LeMesurier, but not included in Mr. Hume's original list, such as *Chatorhea Earlei*, *Gymnoris flavicollis*, *Emberiza striolata*, *Euspiza melanocephala*, *Alauda gulgula*, *Cursorius coromandelicus*, *Gallinago stenura*, *Numenius phœopus*, *and Dendrocygna major*.

Notes on some Burmese Birds.

BY EUGENE W. OATES, C. E.

24.—Accipiter nisus, *Lin.*

This bird has not before been recorded from Burmah. A young bird, from its size presumably a female, was obtained by Lieutenant Raikes, Assistant Commissioner at Yandoon, at the head of the Irrawaddy Delta. It is now in my collection. Wing, 9·6; tarsus, 2·33.

[Captain Feilden, S. F., III. p. 24, recorded it from Thyetmyo. Davison obtained it at Moolyit on the 20th of February 1877. For its occurrence in the Andamans, see S. F., IV., p. 280.—A. O. H.]

74 *Nov.*—Scops sagittatus, *Cass.* Sharpe, Cat., Vol. II., p. 98.

A superb specimen of this very rare Owl, sexed as a male, was procured by my Burmans at Malewoon in South Tenasserim on the 23rd of February. The few specimens known have apparently been received only in Malacca collections.

The skin, which does not appear to be at all stretched, measures 11·5 in length; the wing, 7·2; tarsus, 1·21; bill from forehead to tip straight, including cere, ·87; tail, 5·0; the outer feathers falling short of the central pair by ·7; the 5th quill is the longest, the 6th ·1, the 4th ·15, the 3rd ·55, the 2nd 1·2, and the 1st 2·3 shorter than the fifth.

The bill is a pale yellow, uniform throughout; the toes fleshy brown; the claws pale horn color; the feathers of the tarsus in front reach to about a tenth of an inch from the joint of the middle toe and behind somewhat further up; the toes are perfectly naked; the ear tufts measure 1·2.

Mr. Sharpe's description is so minute and corresponds so well with my bird that any lengthy account of the plumage is unnecessary for these pages, more especially as the coloration of this Owl is distinct, and the size suffices to separate it from others.

The whole upper plumage is a rather rich chestnut; the wings barred on the inner webs with brown, and the tail irregularly banded with the same. Each feather of the upper body plumage has small arrow head fulvous marks in the centre, and some wavy narrow black lines across; the forehead, for a depth of nearly an inch, a broad supercilium, and the inner webs of most of the tuft feathers are white; the shafts of the feathers of the forehead nearly black; the tips of the tufts and the top of the head are a darker chestnut than the back and without marks of any sort; long feathers on the sides of the neck, indicating a ruff whitish, broadly tipped with blackish; lower surface light buff, the shafts of the feathers of the throat black, and the webs vermiculated with brown; breast with dark brown small shaft spots and brown narrow vermiculations; belly and vent distinctly spotted, only not cross barred. The outer webs of the scapulars are fulvous white, and there are some rather large black shaft spots on the feathers.

[Davison shot a *female* of this species a good deal further north at Meetan on the 28th of February.

It measured in the flesh :—Length, 10·9; expanse, 23·5; tail, 5·0; wing, 7·4; tarsus, 1·2; bill from gape, 0·9; weight, 4·74 oz. In the fresh bird the soft parts were as follows :—

Feet and claws bluish white; bill, bluish white; cere, pale bluish green; irides, deep brown.

I don't think this is a very rare bird; it seems to be commonly procured by the Malacca shikarees.—A. O. H.]

584 *quat.*—Henicurus frontalis, *Blyth.*

Two specimens of a Forked Wag-Tail from South Tenasserim are clearly referable to this species and not to *Leschenaulti*. They were procured at Malewoon or its vicinity on the 6th January.

An adult, a female, has the wing 3·5; the tail, 3·7; forked to the extent of 1·6; bill from anterior corner of nostril to tip, ·51; tarsus, 1·1.

This bird has not before been recorded from Burmah, nor has it been described in this journal. The forehead and front of head, as far back as a line connecting the posterior corners of the eye, white. The whole plumage is black, with the following exceptions, these parts being white:—Lower abdomen, flanks, vent, rump, under and upper tail-coverts, tips of scapulars and of the upper wing-coverts near the body, bases of secondaries and tertiaries, the outer two pairs of rectrices, and the bases of the others, the axillary feathers and the tips of the under wing-coverts.

The other bird, with the whole lower plumage disintegrated and obviously quite young, has only three white feathers on the front of the head.

In both birds the bill is black and the legs pale flesh color.

[Davison has also procured this species at Malewoon. Further north at Meeta Myo (Tavoy district) and thence throughout the Hills to the very north of the Tenasserim Provinces, we obtained *Leschenaulti*, Vieill. (*coronatus*, Tem., *speciosa*, Horsf.) All our specimens of this latter are, strange to say, males. All agree with Temminck's and Horsfield's figures of this species as to the extent of the white on the head, and not with Mr. Gould's of his supposed *chinensis*; or, as he originally called it, *sinensis*. The fact is that whether in the Javan, Chinese or Tenasserim birds it is only the forehead that has white feathers (this Horsfield correctly shows); sometimes these white feathers are shorter, but more generally they are long, and when pressed back flat in skins cover the whole crown. In life the bird elevates them much, as shown in Horsfield's plate, and as there shown many of them are in? younger specimens, narrowly tipped black. *Sinensis*, are either, as Elwes suggests, females, or else young birds in which this frontal crest is not yet developed.

Our *Leschenaulti*, measured in the flesh:—Length, 11·0 to 11·5; expanse, 12·75 to 13·75; tail from vent, 5·5 to 6·12; wing, 4·12 to 4·37; tarsus, 1·25 to 1·35; bill from gape, 1·1 to 1·15.—A. O. H.]

386 *ter*.—Pyctorhis altirostris, *Jerdon*. Ibis, 1862, p. 22.

See J. A. S. B. 1876, Part II., pp. 74, 197, and S. F., Vol IV., p. 504.

The re-discovery of this bird in three* different parts of India and Burmah at about the same time is curious. I shot my specimen on the canal bund, about 14 miles from Pegu. That

* Four; the same bird has been found in Sindh.—Ed., S. F.

it is a rare bird in Burmah there can be no doubt, for I have shot only the one specimen now about to be described, and I am not in the habit of passing birds over in the jungle. I kill every thing that I cannot identify at a glance. *Sinensis* abounds here in Lower Pegu, and the two birds cannot be confounded.

Mr. Hume has kindly lent me his Bhootan Dooar's specimen for comparison. His bird and mine agree in the most minute particulars, and there can be very little doubt but that the specimens from Assam are the same.

I drew up the following description before skinning the bird :—

Length 6·05 ; expanse, 7·4 ; tail, 3·1 ; wing, 2·4 ; tarsus, ·96 ; bill from gape, ·55 ; from forehead, ·38 ; height through nostrils, ·23 ; 5th, 6th and 7th primaries sub-equal and longest, 8th very slightly shorter, and equal to the 4th, 3rd ·25, 2nd ·55 and 1st 1·0 shorter than the longest. Under tail-coverts fall short of tip of tail by 2, and the distance between the shortest and longest rectrix 1·7.

Upper mandible, pale horn color, under one, pinkish ; eyelids yellow, but *not tumid* as in *sinensis* ; iris brown, surrounded by a pinkish ring ; inside of mouth flesh color ; legs brownish flesh color ; claws pinkish horn.

Chin, throat and upper breast, greyish white ; lores and a conspicuous streak over the eye dirty white, the centres of the feathers black ; the forehead and top of head rather bright reddish brown, the feathers of the forehead largely centred with blackish ; the whole upper plumage, with the cheeks and ear-coverts, uniform reddish brown, paler than the head ; smaller wing coverts, the same, but each feather edged still paler ; quills brown, with a broad outer edging of reddish-brown and an interior edging of a paler tint ; tertiaries nearly entirely reddish brown, the portion next the shaft only being plain brown ; larger wing-coverts of the same color as the outer margins of the quills ; tail brown, edged with rufous, broadly externally and narrowly internally ; all the feathers indistinctly rayed across. From the breast to the vent, and the under wing-coverts, a warm buff, tinged with ferruginous ; shafts of the feathers of the chin much lengthened and black ; rictal bristles black, 0·3 long.

The bill scarcely differs from that of *sinensis* though it may be slightly shorter compared with its length, and may have the nostrils more open ; and the terminal half of the lower mandible more swollen and slightly more turned up. I do not think it can be separated generically from *sinensis*. They differ less from each other than *longirostris*, with its long, slender bill and large nasal covering, does from either.

Since writing the above, I find that Mr. Hume had already published a description of the Bhotan Dooar's specimen under the name of *griseigularis*. This name was indeed on the cover of the bird lent to me, but I considered it only a manuscript title, and consequently have not referred to it above.

That Mr. Hume was *primâ facie* justified in describing his bird as a new species no one will be prepared to deny on comparing his bird with Jerdon's description of *altirostris*, which must have been written from memory.

[I retain my opinion that neither my bird nor Mr. Oates' is the true *altirostris* of Jerdon; the grounds for this opinion are fully stated, *ante* 116. I dare say Dr. Jerdon procured this bird of ours in Burmah; I dare say he sent it home; he may even have sent it home as his *altirostris*, but that this is not the species that he actually described, I consider almost certain. Many descriptions contained in the B. of In. are doubtless not satisfactory, but these will, in every case, be found to be borrowed and not original, and Dr. Jerdon's own original descriptions are, I should say, always extremely accurate.—A. O. H.]

0 *sex*.—Stachyrhis guttatus, *Tick.* J. A. S. B., 1859, p. 450.

See *Ibis*, 1876, p. 353. *Turdinus guttatus*, Tick.

The acquisition of a specimen of this rare bird enables me to state that the species is nothing but a *Stachyrhis*.* In the form of the bill, the large process over the nostril, leaving the

* I must dissent from this view most emphatically. Mr. Oates, according to my idea, is fundamentally wrong in his whole contention.

1*st*.—The bill of *Turdinus guttatus* is in no degree like that of *Stachyrhis nigriceps*, the type of the genus. The essential character of the latter is to have the ridge of the culmen straight. A character exactly reproduced in *Heterorhynchus Humei*, a species much the same size as *T. guttatus*, and with very similar spotting on the sides of the neck. On the other hand the leading character of *T. guttatus* is its deep bill with notably curved culmen.

2*nd*.—The bills of *Stachyrhis* and *Timalia* are *not* in any sense "quite the same," except for the nostrils. On the contrary in *Timalia pileata*, the type of the genus, the culmen is conspicuously curved, in *Stachyrhis* conspicuously straight.

3*rd*.—The coloration of *T. guttatus* seems to me to have no affinity for that of *Stachyris nigriceps*, but its affinity for that of *Drymocataphus nigricapitatus* is patent.

The bills of *Turdinus guttatus* and *Timalia pileata* are strikingly like each other in outline, but that of the latter is much more compressed and less massive. I think that the bill of *Mixornis rubricapilla*, considerably magnified would convey the best idea of the bill of *T. guttatus*. *Timalia poliocephala* of Tem. is also closely affined to our present species.

The well bowed culmen and deep comparatively massive bill of *guttatus* separates it equally from both *crispifrons* and *brevicaudatus*, and from *Drymocataphus*, *Malacopteron*, *Trichastoma*, &c., while other differences render it doubtful whether it could be united with *Timalia*. I hope before long to furnish a review of all the Indian, Indo-Burmese and Malayan (or rather Malay Peninsular) species of this group, and I defer till then further remarks in regard to the true position of *Turdinus guttatus*.—Ed. S. F.

latter merely a narrow slit; in the length of the tail and the relative proportions of the rectrices and primaries it corresponds exactly with *nigriceps*, the type of the genus. The bold coloration of the two species is also of the same character. A year ago Lord Walden pointed out that the bill of the bird figured by Tickell appeared to be that of *Timalia*. Now the bills of *Timalia* and *Stachyrhis* are quite the same with one exception—a point which can hardly be shewn in a drawing of a small bird. In the former the nostril is quite open; in the latter it is covered by a peculiarly-shaped membrane nearly entirely closing it. It must have been this that induced Hodgson to name the genus *Stachyrhis* στάχυς from the resemblance of the membrane to a grain of corn. Sundevall *Meth. Nat. Av. Disp. Tent.*, p. 10, adopted Agassiz's change of the name to *Strachyrhis*, and since that time it seems to be the practice so to spell it.* Nothing can be urged in defence of the alteration.†

To return to my bird. It was shot at Malewoon in South Tenasserim on the 29th December and is sexed as a male. The length of the skin is 6·2; tail, 2·2; wing, 2·65; tarsus, ·95; bill from gape, ·94; the 4th, 5th, 6th, and 7th quills are subequal; the 1st is 1·17, the 2nd ·6, and the 3rd ·35 shorter than the longest. The tips of the outermost rectrices fall short of the tips of the central pair by ·5; the bill is a dark bluish horn colour, and the legs are brown.

The plumage is very firm, and the feathers of the neck are more or less lengthened.

[We found this species very common at Meetan in February, and secured numerous really fine specimens.

The following are the dimensions and colours of the soft parts, recorded in the flesh from a large series of both sexes:—

Sex	Length	Expanse	Tail from vent	Wing	Tarsus	Bill from gape	Weight.
♂	6·5-6·9	9·0-9·3	2·1-2·3	2·7-2·9	1·0-1·05	0·9-0·92	1·12-1·3oz
♀	6·3-6·7	8·9-9·0	2·3	2·7-2·8	1·0	0·85-0·9	1·0-1·25oz

The legs, feet, and claws are pale dingy green; the lower mandible and edges of upper mandible are pale plumbeous;

* As instances of the reckless way in which some persons alter other peoples' names, I may mention the attempt of the late Professor Sundevall to substitute *Hadropezus* for *Turdinus*, *Entomoletes* for *Chaptia* and *Smilonyx* for *Kelupa*.

† Except, that as far as I can make out it was Hodgson himself who first in 1844 named the genus "*Cilathora*" and "*Strachyrhis*," and it was only in 1845 that he changed the name to "*Stachyris*." Whether even *he* had the right to do this will depend upon whether either of the former names were well defined, not implying a false proposition likely to propagate important errors and not erroneous in transliteration.

It should not be forgotten that the British Association endorsed De Candolle's famous dictum. "L'auteur même qui à le premier établi un nom n'a pas, plus qu'un autre, le droit de le changer pour simple cause d'impropriété. La priorité en effet est un terme fixe, positif, qui n'admet rien, ni d'arbitraire, ni de partial."—Ed., S. F.

the rest of the upper mandible dull black; the irides deep crimson, or crimson lake.

The following are the original descriptions :—

First.—Blyth's J. A. S. B., XXVIII, 414, 1859.

"*Turdinus guttatus*, Tickell, N. S.—This deviates a little from the three* species previously described, in not having the feathers dark† margined (as in most *Oreocinclæ*), while the speckling of the sides of the neck is peculiar. Colour is rich deep ruddy-brown, more rufescent on the tail-coverts and tail; the throat pure white, bordered on either side with a black moustache, above which is a white spot; rest of the lower parts deep rufo-ferruginous, tinged with fuscous on the flanks and lower tail-coverts, and shewing a slight medial whitish line; loral feathers black with greyish-white lateral edges; the frontal feathers stiff as usual; ear-coverts brown; behind the eye an ill-defined streak, and behind the ear-coverts a great patch of feathers, each having an oval white mark set off with black, and other feathers thus marked across the nape; bill plumbeous; and legs plumbeous brown. "Female.—Irides [redacted]epia."‡ Length, 6 in., of wing $2\frac{3}{4}$ in.; and tail $2\frac{1}{2}$ in.; [redacted]e plumage extremely copious over the rump; bill to gape in.; and tarsi 1 in."

Second.—Tickell's J. A. S. B., XXVIII, 450, 1859.

"3. SPHENURIDÆ.—*Turdinus* (Blyth) *guttatus* (mihi). Spec. female. March 2nd, 1859. Woods near Theethoungplee, 3,000 feet.

Dimensions.—Length, $6\frac{5}{12}$; wing, $2\frac{11}{12}$; tail, $2\frac{1}{8}$; bill, $\frac{11}{12}$; tarsus, $1\frac{1}{12}$; mid toe, $\frac{3}{4}$.

"*Details.*—Typical. (See Appendix to Blyth's report for December Meeting, 1842. Continued from Vol XII, p. 1011, Journal As. Soc.)

"Plumage of front, lores, and chin stiff and setaceous; but rictal bristles not much developed.

Color.—Female. Iris sepia. Lids nude and dull smalt; bill horny, dark on culmen, pale and livid on crura; legs horny; claws pale.

"Crown and upper parts rich vinous olive-brown, brightening to full vinous, rusty on upper tail-coverts and outer webs

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* *Viz. T. macrodactylus*, the type of the genus, J. A. S. B. XIII, 382, 1844; and *T. crispifrons* and *brevicaudatus*, J. A. S. B. XXIV, 269, 1856.—ED., S. F.

† Although there is no approach to the extent of dark margining observable in the other three species, yet in very fine freshly moulted specimens all the feathers of the crown and back are excessively narrowly margined darker. This, which imparts a scaly appearance to these parts, is entirely wanting in some specimens, in fact wears off I believe.—ED., S. F.

‡ This, taken from Tickell, is probably a mistake; all our birds without exception, males and females, had the irides crimson.—ED., S. F.

of remiges. Tail as back, obscurely barred blackish* feathers of crown edged† black, a few pale spots on sides of occiput; frontals ash, striated black."

"Auriculars dusky, bounded beneath by a white line, which joins a patch of white on ramus continued to bill; chin and throat pure white, separated from ramus by a black line which spreads into a patch on side of throat; from top of eye down sides of neck and across upper back a space of acuminate black-edged white feathers; all underparts from throat rich orange rusty, deepening into vinous brown on vent."

I reserve further remarks on this species for our general account of the Birds of Tenasserim.—A. O. H.]

Remarks on some species of the Sub-genus Lillia, (Boie, 1859.)

The little sub-group of Swallows, included in Boie's genus or sub-genus *Lillia*, presents considerable difficulties to u learned practical ornithologists, like myself.

We have apparently four species (excluding *hyperythr* which is included by Mr. Gray under *Cecropis*), but wha names two out of these should bear, and whether or no they are distinct and as yet unnamed, are matters that I am unable to decide with any certainty.

Mr. Gray, H. L., 69, admits the following species:—

L. daurica, *L.*
L. erythropygia, *Sykes.*
L. melanocrissa, *Rüpp.*
L. rufula, *Tem.*
L. japonica, *Tem.* and *Schl.*
L. domicella, *Hartl.* and *Finsch.*

To which we must certainly add, though Mr. Gray includes the first under *Cecropis.*

L. striolata, *Tem.* and
L. arctivitta, *Swinh.*

Now what are *our* species?

I may premise that in none of *our* four supposed species is there, so far as I can ascertain, *ever any* white on the inner webs of the tail-feathers.

Out of some 80 specimens of the smallest of our four species, (*erythropygia*, Sykes,) I detected in three, small, *slightly* paler,

* More correctly "obsoletely banded darker."—Ed., S. F.
† *Very* narrowly, and this only in some specimens.—Ed., S. F.

patches on the inner webs of the outer tail-feathers, and in about specimens of the three larger species I found similar, still ...ter, patches in *two* specimens.

One of our species, *viz.*,

L. erythropygia, *Sykes.* P. Z. S., 1832, p. 83,

May be disposed of at once—its small size, coupled with its generally constant difference in coloration, sufficing to separate it from all the other Indian species, and indeed, I think, from all other species of the group.

It varies in length from 6·5 to 7·0, (I speak throughout of adults,) but the usual length is 6·75.

The wings vary from 4·1 to 4·45, but the great majority of specimens have them 4·2 to 4·3.

The tail varies from 3·0 to 3·35, but 3·3 is the normal length in an adult full-plumaged male.

The fork of the tail, *i.e.*, the distance by which the exterior exceed the median tail-feathers, varies from 1·2 to 1·6, but about 1·35 seems the usual amount of forking.

The patch on each side of the occiput is bright chestnut. ...e two patches meet behind and form a distinct nuchal ...f collar, about 0·2 to 0·25 broad, in the fresh bird, or *very ...ood* specimens.

It is to be noticed that I speak of adults; in this sub-group, ...e difficulties in discriminating species are increased, first ...the fact that the general ... the colour of the occipital ... by ... and rump, the striation ... this latter, the extent of the patches ...llar, the size and intensity of ... of the lower surface, all ... vary more or less with age; and, secondly, by the extreme rar... all ... *really* good specimens, showing collar, ear-coverts, &c., ... clearly and well. Out of over 140 specimens ...efore me, not above 20 per cent. are really satisfactory in this ...spect.

The ear-coverts are chestnut, like the occipital patches, but ...ller and sometimes paler, and more or less *thinly* striated with ...sky. This separates them from the other Indian species ...which, in adults even, the ear-coverts are a sort of pale ...id buff, sometimes slightly greyish in the Himalayan bird, ...ely striated with dusky.

...e rump and greater portion of upper tail-coverts are ...lly an uniform bright chestnut, without striations, *not* ... towards the tail.

... is no exception to this in some 50 adults. In the ..., which have not fully donned the glossy blue-black of ... and mantle, both occipital patches and rump, &c., are ...h paler, but even then the rump and all but the longest

upper tail-coverts, (which are black or, in the young, dusky) are *uniform*.

Amongst my supposed *erythropygia*, I found two specimens in which the rump, &c., distinctly paled to the tail, and were distinctly black shafted, but the wings 4·6—4·65 showed at once that they were young birds of one of the larger species and not *erythropygia* at all.

With due attention to the dimensions noted, (I have only given those that are useful for discriminating our species) and the remarks above recorded, there ought to be no difficulty in separating *erythropygia* at all times.

This disposes of one of our species and one of the eight above enumerated.

The so-called **L. daurica**, *Lin.*, must, I apprehend, stand as **alpestris**, *Pall.* The species is not included in the XIIth Ed., Sys. Nat., but it is mentioned by Linnæus in the Mantissa, dating I believe 1771, (p. 528), and in the Act. Stockh., 1769. I have never seen these, but I gather from Pallas, Schlegel, and others that Linnæus did not then confer any specific title but merely designated the species, as "H. cœrulea, subtus alba temporibus uropygioque ferrugineis." It was on this and on Pallas's *alpestris* and Latham's Daurian Swallow, that Gm. S. N., I., 1024 (1788) founded his *daurica*. But Pallas had already (1776) in his Voyages (II. App. &c, 709, No. 9. *orig. Ed.* In the French translation by Gauthier de la Peyronie, most commonly met with, it is III. Ap. 464, No. 11) fully described the species as *alpestris*, and by that name it should, I suppose, stand.

This is Pallas' description, as finally revised in his Zoog. Ross. As. I., 534, 1810.

"Size exceeding that of *H. rustica*, and the bill slightly wider; the mouth yellowish within, the tongue triangular, yellow, bifid; the crown, the middle of the back, the basal portion of the wings, and the (upper) tail-coverts, steely black; the triangular space on either side, between the eyes and nape occupying the temples, ferruginous, these spaces often meeting on the nape; ears ashy; rump, almost to the middle of the back ferruginous: beneath the body lutescent or dingy white, lines striated with black shafts; lower tail-coverts, with the po black with a bluish lustre; wings below yellowish white dusky shafts; quills (*i. e.*, primaries and secondaries) 17, the 10th to the 15th emarginate at the tips so as to be shaped there;* tail shining black, extremely forked; t middle feathers nearly equal, the outer on each side mu

* This peculiarity is more or less common to the whole group.

longest and for the most part with an oblong white spot on the inner web; the feet somewhat larger than in other species of the genus, dusky; the toes not versatile. Weight 5 to 7 drachms, rarely more. The body, 4·2; the tail, 4·25; the middle tail-feathers, 1·93; expanse, 13·7; wing 4·93; bill, 0·6; width of gape, 0·64; tibiæ, 0·55."

It has been the custom (in which I have duly followed my betters) to identify our Himalayan bird with this species; but in the first place to judge from some 50 specimens, our bird *never* has any white on the tail-feathers; in the second place the ferruginous of the rump can hardly be said to extend almost to the middle of the back; in the third place the upper tail-coverts cannot be said to be steely black, as only quite the longest in our bird are black, the rest are unicolorous or nearly so with the rump. This might be passed over as carelessness in description were it not that, in dealing with the lower tail-coverts, Pallas carefully points out that only the tips are black, whereas, as a fact in our bird, the lower tail-coverts are black for from 0·7 to 0·9, while the visible black portion of the upper ones is only about 0·4, very rarely 0·5; so that if Pallas had alluded either black, it would have been the lower and not the upper, and when he is careful to mention in regard to the lower, so *much* of which is black, that it is only the terminal portions that are so, *a fortiori*, one would think, he would not have called the upper tail-coverts black, *without* reservation, when so *little* of them is of this color.

As to size,* I do not exactly understand how Pallas measured his bird, and [illegible] the two dimensions, however, added give a total length of 9·42, against a *maximum* length in the flesh, for our birds, of 7·9—the great majority of fully-plumaged adults not exceeding 7·75, and only one, out of some 30, (measured in the flesh) exceeding 7·8. But in regard to the wings there is not so much difference, as they run in our Himalayan and Tenasserim Hill birds from 7·6 to 7·8.

Again, the tail is *never* shining black, but always hair brown, with, in the freshly moulted bird, a certain lustre, bluish towards the base and greenish towards the tips of the feathers.

Lastly, it cannot be said of our Himalayan specimens that the red occipital patches *often* meet on the nape, because in fully-plumaged adults there is invariably a distinct rufous collar, not *broad*, as Mr. Swinhoe says (P. Z. S., 1871, p. 846) but distinct and about 0·2, or in some cases possibly 0·25 wide. I speak of course of the *fresh* bird; in nine out of ten skins the collar almost wholly disappears.

* Naumann gives (XIII, 211) the following dimensions of a specimen from the Altai Mountains:—Length 8·8; tail, 5·2; wing, 5·75.

I think we may, with considerable certainty, decide that our Himalayan birds are quite distinct from the true *alpestris*, Pall.

L. melanocrissa, *Rupp.* (System. Uber. Vog. N. O. Afr. 17, t. 5, 1845) of Abyssinia might possibly occur in Sindh, Kattiawar or Northern Guzerat, but I have never seen it from India; it is distinguishable at once by the adults having no striæ on the lower surface, none on the cheeks and face, by its rufous anal band, and by the *greater portion* of the upper and under tail-coverts being black, blue glossed. It has no white on the outer tail-feathers. Length about 7·6; wing, 5 to 5·2; tail, 4·1, fork about 2 to 2·1.

L. rufula, *Tem.* Is a name that cannot perhaps properly stand. It was founded by Temminck, (Manual d'Orn. 2nd Ed., III., 298, 1835) avowedly on Le Vaillant's Hirondelle Rousseline, (Ois. d'Afr. V. pl. 245, f. 1.). Le Vaillant himself describes the species thus:—

"The top of the head black, and the upper part of the back of the neck bright rufous, as is also the rump; the mantle, wings and tail (which latter is very forked, and of which the external laterals are terminated in two narrow prolongations and the median ones marked interiorly with a white spot,) are of a shining bluish black, similar to that of our Chimney Swallow; the throat, the front of the neck, and the whole lower part of the body, including the lower tail-coverts, are a light rufous, deepening towards the vent, all the feathers of these parts having blackish shafts; the feet are a yellowish brown; the irides bright chestnut; the bill black.

"The female is like the male, except that she has the whole top of the head red, and that the longer feathers of her tail are less prolonged than in the male."

Accepting this as his text, identifying Gmelin's *H. capensis* (S. N., I., 1019, No. 19, founded on Buffon's Hirondelle à tête rousse du Cap de Bonne Espérance, P. E., 723, f. 2) with it, rejecting this name as inapplicable to a bird that had been found in Europe, Temminck translated Le Vaillant's name into *rufula*, and while copying that author's description of the *female*, proceeded to give an original description of the so-called *male*, founded probably on a specimen obtained in Sicily.

What Le Vaillant's male *Rousseline* may have been no one knows. Sundevall thinks it was a manufactured bird, but he is rather fond of solving all difficulties thus. Most certainly it was not the bird now commoly known as *rufula*, Tem.

On this doubtful, and perhaps mythical, male and a description of a female, probably of *capensis*, as a basis, and avowedly accepting *capensis* of Gmelin as identical, Temminck described as the *male* the bird now known as *rufula*. The species is, therefore, a composite one, and the name ought possibly to be suppressed and the species renamed after Temminck, *L. Temminckii*.

Temminck's description of the male is as follows:—"On the top of the head a large bluish black cap, with polished steel reflexions; nape, cheeks, sinciput and little superciliary streak, rusty red; hinder part of neck, mantle and tail-coverts, the bluish black of polished steel; rump bright red, turning to whitish isabelline towards the bases of the tail-feathers; lower parts of a rufous isabelline, each feather with a narrow brown streak along the shaft; wings and tail black, the latter deeply forked, and the lateral feathers long and subulate; bill, iris, and feet, black: length 7·67."

Later he became aware of the muddle he had got into with this species, and in the Faun. Jap. (34, 1850) he and Schlegel remark:—

"The species discovered in Sicily by Mr. Cantraine, and which has likewise been observed in the south of France, may bear the title of *Hirundo rufula*, see Temminck, Manual III., 298, and Schlegel, Revue Critique, p. XVIII and 41. It is of the same size as the Cape species, but has a smaller and feebler bill; the top of the head is an uniform blue black; *the tail has no white band;* the terminal half of the lower tail-coverts are black; the lower surface is a pretty shade of yellowish rusty and the striæ are very fine and little apparent."

The characteristics of this species as compared with *alpestris* clearly are—first, that it usually has no white on the inner webs of the outer tail-feathers; second, that the rump instead of being uniform pales towards the tail-feathers to buffy white; third, that the striæ on the lower surface are very fine and little apparent.

What bird Bree figures (B. of E. n. o. i. G. B. III., 174), length, 7 inches (?); wing, 4·8, with a conspicuous white spot on the inner webs of the outer tail-feathers, I cannot guess; certainly, if the dimensions are correctly stated not an adult *rufula*. In all my specimens of this species, the length, I judge, must have exceeded or been close upon 8 inches, and the wings exceed 5, and Naumann (Vog. Deutschl. Suppl. XIII., 210) gives far larger dimensions. "Length, 8·75; wing, 5·5; tail, 5·12; fork, 3·3; the first quill the longest, the second 0·09 shorter and each of the rest 0·37 shorter than the preceding one."

Neither of our larger species are *rufula*, both have the striæ of the lower surface well marked, both have the rump band narrower, and in the fully plumaged adult uniform in tint and not paling towards the tail, and our Himalayan and Tenasserim Hill form is considerably smaller.

I am at a loss to understand the grounds on which Mr. Swinhoe (P. Z. S., 1871., p. 346) remarks that he has "now no doubt that both Linnæus and Pallas applied their names to *rufula*, Tem." As Naumann, Selys de Longchamps, and others have repeatedly pointed out *alpestris* from the Altai Mountains differs unvariably from *rufula* in the greyer ear-coverts, in the narrower (almost obsolete) neck band, in the nearly uniform rump, not paling to buffy white towards the tail, and in the invariably much more strongly marked striæ of the lower parts.

I may here draw attention to the fact that, though these birds are all great wanderers at other seasons, so that two and three species may be shot together during the autumn and winter (*e. g.*, *erythropygia* and our Himalayan species) they are I believe very true to their breeding haunts; *rufula* and *alpestris* may very likely have been shot out of apparently the same flight in Russia or Central Asia, but I venture to predict that if only breeding birds from the Altai on the one hand, and the Mountains of Greece and Palestine on the other, be compared, they will invariably present the above characteristic differences.

L. japonica, *Tem. & Schl.* (Faun. Jap. 34, t. XI, 1850) from Japan and Amoy is a smaller species than the preceding. Length, 7·25; wing, 4·75; tail, 3·84; fork, 2·1: in fact much the same size as our Himalayan birds, but with a shorter tail.

It has a blackish triangular patch in front of the eyes. The under surface very strongly striated, much more so than in any of our Himalayan birds, and the broad rump band, which is more the colour of, though paler than, that of *erythropygia*, has narrow black or blackish shaft stripes to the feathers. This latter is observable, though the stripes are here much finer, in many young and not fully plumaged specimens of our Himalayan birds, but in these the rump band is *much* narrower and paler; in the young at times this band is not more than 0·5, even in the adults it never exceeds 1·0 and rarely 0·9, while in one specimen of *japonica* it is 1·1, and Mr. Swinhoe gives it as 1·2.

L. domicella, *Hartl. & Finsch* (O. Afr., 143) of Southern and Central Africa is a minature of *melanocrissa*, with much paler lower surface, the adults distinguishable at a glance

from all our species by the unstriated lower surface, the bright rufous vent band and the large extent of black on the upper and lower tail-coverts. In both species the young have the abdomen more or less striated, and in this species, at any rate, have dark shafts to the rump feathers.

L. striolata, *Tem.* From Java was thus first described (Faun. Jap. 33., 1840):—

"Wing, 5·5; tail, 4·95; fork, 2·2; hind claw, 0·23. Bill a little wider and much stronger than that of *H. rustica*; the red of the collar and aural region very inconspicuous; rump with fine black longitudinal lines; lower tail-coverts blackish, but whitish on their basal halves; the rest of the lower parts whitish with sufficiently well marked longitudinal black striæ; tail without white spots."

Note that by this expression, "sufficiently well marked," it is intended to signify very strongly marked, for a little further on we are told that the striations on the lower surface of *japonica* are *almost* as strongly marked as on that of *striolata*. Now those of *japonica* are very pronounced those on the throat and breast, being as our authors themselves say from 0·025 to 0·03 wide, and in my specimen I think almost 0·033.

Of **L. arctivitta,** *Swinh.* P. Z. S., 1871, p. 346, but little can be said. I cannot discover that Mr. Swinhoe has ever published either dimensions or description.* He merely says that the bird is of about the same size as the specimens *he believes* to be *japonica* (!) is more faintly and narrowly striped on the under parts than that species, and is distinguished from all other species of the group by its extremely narrow rump band, only 0·7 wide. As he neglects to mention whether this measurement was or was not taken from fully plumaged adults, as the rump band in our Himalayan bird in adults is, I find, only 0·8 in several specimens, and only 0·5 in young birds, this does not help us much. He goes on to say that our Himalayan bird (which he correctly designates, I believe, as *nipalensis*, Hodgson) is distinguished by its *broad* rufous nuchal collar, and refers to Gould's plate of *daurica* as representing this species. But our Himalayan bird has not a broad rufous collar, but one varying from 0·2 to possibly ·25, and I very much doubt if Gould's plate was taken from a Himalayan specimen; for the striping on the flanks is much

* It is to be regretted that no full detailed dimensions and descriptions of a great number of Mr. Swinhoe's new or supposedly new species exist. Many of the species remain merely indicated but in no sense *defined*.

too strongly marked for 99 out of every 100 Himalayan birds and the ear-coverts are rufous, which is not the case in our bird, and the red-eyebrow is much too broad.

I gather, however, from the context that the rump in Mr. Swinhoe's bird is striated, and if it is distinctly so, in the adult, fully plumaged bird, this will suffice to separate it from our Himalayan species.

We have now to turn to our Indian species, and first to take our Himalayan birds which breed everywhere throughout the ranges south of the first snowy range, at elevations of from 6,000 to 8,000 feet from Afghanistan to Bhootan, and which occurs during the cold season in various parts of the plains in Continental India and in the Northern Tenasserim Hills, and very possibly also breeds in these latter.

Hodgson thus described the species, J. A. S. B., V., 780, Decr. 1836.

L. nipalensis, *Hodgs.*

"Cap, back, scapulars and wing-coverts, brilliant deep blue; quills, tail-feathers and the longer tail-coverts above and below dusky: a narrow frontal zone, cheeks, neck and body below as well as the rump and lesser tail-coverts above, rusty, pale and striped with narrow lines of dusky hue on the whole abdominal surface; dorsal neck more or less blotched with blue; rump, immaculate; bill, black; iris, dull brown; legs, fleshy grey; sexes exactly alike structure typical; tail long and deeply forked; size of *H. rustica*.

"This is the Common Swallow of the central region, a household creature remaining with us for seven or eight months in the year."

In dimensions adults vary in length from 7·4 to 7·8; wing, 4·6 to 4·8; tail, 3·7 to 4·1; fork, 1·7 to 2·3. The visible black portion of the upper tail-coverts is usually about 0·5, but varies from 0·4 to 0·7; of the lower tail-coverts 0·7 to 0·9, most generally the latter. The rump band in adults varies from 0·8 to 1. In perfect plumaged adults it is usually a uniform fairly bright bay, unstriated; but in many birds, during or after the breeding season, it pales posteriorly after the fashion, but not to the extent, of that of *rufula*.

The lower parts are creamy white, often almost plain greyish white on the middle of the throat, with a pale ferruginous tinge on breast, rather more decided on flanks, axillaries and wing-lining. The occipital patches and nuchal collar (the latter a little varied with blue glossed feathers) are bright bay. The ear-coverts are like the lower surface, in some a little more rufescent, and, being very densely striated with dusky, look

much darker and duller. There is a bright blue gloss on the black portions of both upper and lower tail-coverts.

All this is in adults. In younger birds the bay portions are lighter coloured (in quite young ones the entire rump band is pale isabelline); and the feathers of the rump have blackish brown shafts, not shaft stripes, but only shafts. In non-adults the blue gloss of head mantle, &c., is more or less wanting or imperfect; in the quite young the lower surface is nearly pure white, and the striæ are very faint on the abdomen. As the young grow older the striæ become stronger for a time; as far as I can make out they are strongest in the cold season, next but one after the bird's birth, after which they again grow somewhat feebler, though remaining always much more strongly marked than in *erythropygia*.

The quills and tail are always hair brown; there is a bluish and greenish gloss on these when the bird has freshly moulted, most noticeable on the later secondaries and median tail-feathers. Scarcely a trace of this remains when the breeding season commences.

The first two primaries are subequal, usually the first is from shade to 0·05 longer than the second; in a few specimens I find the second the longest. The succeeding primaries are each about 0·3 shorter than the next preceding one.

The difference in size, and the more marked striations of the lower surface, will always serve to distinguish this bird from *erythropygia*. Even the just-flown nestling still has the throat and breast strongly striated, while in the corresponding stage of *erythropygia*, the entire underparts exhibit scarcely a *trace* of *any* striations.

The next species appears to me to be as yet undescribed. I have received several specimens from Suddya at the extreme eastern limit of Assam. I propose to designate it

L. intermedia, *N. S.*

It is conspicuously larger than any of over 50 specimens of *nipalensis* with which I have compared it, and it differs in other particulars.

Length, 7·7 to 8·0; wing, 5·0 to 5·2; tail, 3·8 to 4·0; forked for 1·8: a larger series may show longer tails, but it would seem that for the size of the bird the tail is shorter and less forked.

The rump band from 0·9 to 1 in width is a deeper bay, intermediate in shade between adult *nipalensis* and *erythropygia*. It is absolutely uniform. I speak only of adults, as I have received no young birds.

There is *no* rufous nuchal collar, though on the nape there is an imperfect row of red spots, about 0·05 wide.

The whole lower parts, but especially the breast, abdomen, and lower tail-coverts (except of course the black tips), are much more rufescent than in *nipalensis*, and may be called a pale salmon buff—the wing-lining and axillaries being dull salmon. The striæ are much as in some *nipalensis*, but average rather stronger.

The second primary is 0·3 shorter than the first—a structural peculiarity by which, if constant, this species may be at once distinguished from *nipalensis*.

The visible black portions of the upper tail-coverts are about 0·5, of the lower 0·65 to 0·7.

The ear-coverts are brownish buff striated with dusky.

There is no trace of any white spot on the inner webs of the outer (or any other) tail feathers in any of my four specimens.

This species approaches closely to the true *alpestris* of Pallas as described by him, but differs in not having the ears ashy, in not having the rump almost to the middle of the back, pale ferruginous, but having less than one-third of the back, bright bay, in having only the tips of the upper tail-coverts black, in having the wings below dull salmon colour not yellowish white, in having the entire lower surface not *lutescent* or sordid white but distinctly *rufescent*, in having the tail brown and not shining black, and in having no white spot on the tail.

I have no doubt that, when a series of specimens are compared, many other differences will be apparent.

Lastly, we have a species very distinct from all our other Indian ones, which I have as yet only received from Cachar where it is a cold weather visitant, but which doubtless will be found equally at that season in the valley of Assam, Sylhet, &c.

The nearest ally is *striolata* of Temminck, from which it differs in its smaller size proportionally more forked tail, less massive bill and much richer colored under parts. I propose for it the name of

L. substriolata, *N. S.*

Length, 7·75; wing, 5·0; tail, 4·0; fork, 2·25.

A mere trace of a rufous collar.

Rump and all but the longest upper tail-coverts, uniform bright rusty rufous, or bay, each feather with a blackish shaft, and in the case of those nearest the black ones, with distinct though narrow shaft *stripes*.

Rufous rump band 1·0 to 1·1 in width.

Longest black upper tail-coverts project 0·4 only beyond bay ones.

No white spot or mark on the tail feathers.

Throat rufescent white; rest of lower parts rather pale salmon buff, brightening to warm salmon colour on axillaries and wing-lining, every feather with a blackish brown shaft stripe very fine, mere shaftlines, on the axillaries, but *very strongly* marked elsewhere. The black visible portions of the longer lower tail-coverts, 0·65 to 0·7.

Crown, mantle and tips of upper and lower tail-coverts with a high lustre, greener and less blue than in any other of our species. Wings and tail brown, but with a very marked greenish lustre.

I will now add a very brief diagnostical table of the 11 species to which I have referred, which, with the remarks above offered, ought to enable any one to separate full plumaged adults of any of these species as *I* understand them.

But avowedly my knowledge is most imperfect, and my great object in putting forth this cursory notice is to induce more competent authorities at home who can command series of the species of which I have none or only single specimens, to investigate the group systematically.

FULLY PLUMAGED ADULTS.

Rump unstriated.

Lower surface unstriated.

Wing, 5·0 *to* 5·2 ... ... *melanocrissa.*

„ 4·75 ... ... *domicella.*

Lower surface striated.

Striations fine and inconspicuous, more or less obsolete on abdomen.

Rump band paling conspicuously towards tail. Wing over 5·0 ... *rufula.*

Rump band uniform. Wing under 4·8. *erythropygia.*

Striations well marked on entire lower surface.

Wing 5·0—?; usually a white spot on outer tail feathers. Wing and tail shining black; rump band extending almost to middle of back; ears ashy. *alpestris.*

Wing 5·0 to 5·2; no white on tail; wings and tail brown; rump band 0·9 to 1·0; ears brownish buff, striated dusky ... *intermedia.*

Wing 4·6 to 4·8; no white on tail; wings and tail brown; rump band 0·8 to 1·0; ears dingy yellowish white or pale dingy rufescent, densely striated with dusky. *nipalensis.*

Rump distinctly striated.

Lower surface strongly striated.

Wing 5·5 ... ... *striolata.*

Wing 5·0 to 5·2 ... ... *substriolata.*

Wing 4·75 ; *rump band* 1·1 *to* 1·2 *japonica.*

Lower surface more feebly and narrowly striated.

Same size as japonica ; *rump band only* 0·7 *wide* ... ... *arctivitta.*

As for the young birds I know too little of those of nine species out of the eleven to enable me to speak, but I would repeat that in non-adults, no certain diagnosis can be taken from the streaking of the rump, the colour of the under surface, or the amount of its striation ; the first is a character common to the young of the majority of the species, but which only survives in the adults of four, and the two latter vary much during nonnage, and in no case are precisely those of the adults.

I cannot conclude without noticing that in my opinion the magnificent Chestnut-bellied Swallow of the Malayan Peninsular, referred to by Holdsworth, P. Z. S., 1872, p. 419, is quite distinct from *hyperythra* of Ceylon, and, as they are both very closely allied to the species of which we have been treating, (though according to Mr. Gray they belong to the other sub-genus *Cecropis*, Boie), I shall give brief descriptions of both.

C. hyperythra, *Layard.*

Length (from the skin) about 6·5 to 6·75 ; *wing*, 4·7 to 5·0 ; *tail* 3·25 to 3·6 ; *fork*, 1·2 to 1·7.

Forehead, crown, occiput, nape and mantle, shining blue black ; wings and tail *blackish brown*, with more or less of a blue gloss, I suspect according to season. Chin, throat, cheeks, ear-coverts, entire lower surface (except the terminal 0·7 to 0·8 of the lower tail-coverts which are blue black) and rump band (*about* 0·8 *wide*) *rusty red*, more inclining to chestnut on the rump. The terminal 0·5 to 0·6 of upper tail-coverts, the under parts and blackish *distinct* brown shafts, *very thickly set in the ear-coverts*, face, with

Shafts of the earlier primaries *brown, paling*, in ... s.

mens, *conspicuously towards their bases.* ...ost speci-

C. archetes, *N. S.*

Malay Peninsular (dimensions recorded in the flesh ...

♂ Length, 8·15 ; expanse, 15·0 ; *wing*, 5·55 ; *tail*, 4·— *fork*, 2, tarsus, 0·65 ; bill from gape, 0·65 ; weight, 1·25oz. ...·25 ;

♀ Length, 8·2; expanse, 14·25;* *wing*, 5·26;* *tail*, 4·5; *fork*, 2·2; tarsus, 0·65; bill from gape, 0·65; weight, 1·2oz.

Bill, black, fleshy white at gape; legs and feet, black or purplish black; claws black; irides deep brown.

Forehead, crown occiput nape and mantle, shining blue *black*; wings and tail black, with a strong blue gloss.

Chin, throat, cheeks, ear-coverts, entire lower suface (except the terminal 1 inch of the lower tail-coverts which are shining blue black) and rump band (*about* 1·2 *wide*) *deep chestnut*, deepest on the chin throat, face and rump. The terminal 0·4 to 0·6 of the upper tail coverts blue glossed black. Only *faint traces* of darker shafts to the feathers of the lower parts not noticeable in most specimens until closely looked into, *none on the ear coverts.*

Shafts of the earlier primaries *black, not paling perceptibly towards bases.*

In the much smaller *hyperythra*, the bill is proportionately, and indeed I think even *actually*, larger; is broader and *much less* compressed towards the point.

I have compared six Ceylon specimens of *hyperythra* with ur of *archetes* shot at Kuroo, 26 miles N. W. of Malacca, nd I do not think that there can be the remotest doubt as to the entire distinctness of the two species. The extreme brilliancy of the plumage and the large size marks out this Malayan form as a veritable "Prince" amongst Swallows.—A. O. H.

A Monograph of the Cinnyridæ or Family of Sun-birds.†

By Captain G. E. Shelley, &c., &c.

We have now received three parts of Captain Shelley's beautiful work, and propose to give a brief review of their contents.

We may commence by remarking that it has been asserted that the title of the group would more correctly stand as *Nectarinidæ*, apparently because, although *Nectarinidæ* of Boie is junior to *Cinnyridæ* of Vigors, *Nectarinia* of Illiger as the oldest genus, should "give the name to the larger group.'

* First primary not fully grown.

† London, published by the author at the office of the British Ornithologists' Union, 6, Tenterden Street, Hanover Square, W. To be completed in 12 parts; each price one guinea. Address the author, 32, Chesham Place, London, or the Guards' Club, Pall Mall, London, or R. H. Porter, 6, Tenterden Street.

—*Cinnyris osiris* (Finch) is recognised as a good species.

We note that in his diagnosis our author says that this species is "scarcely *smaller*" than *bifasciata*, while in the text he says that it is constantly larger.

pl. 3. CINNYRIS ZEYLONICA*.—The author does not recognise *Nectarophila* as of generic value, but uses it later on for what he terms a "group."

Compared with the synonomy given by the Marquis of Tweeddale (*Ibis*, 1870, p. 37) we find he excludes *Le sucrion*, Levaillant, and *Certhia curucaria*, Linn.

The distribution of this species is not very accurately defined in the text. It may be generally stated that this species is confined to Ceylon, Southern and Eastern India. It does not occur so far, as we know, in Sindh, Kutch, Kattiawar, Rajpootana, the Punjab, the North-West Provinces, Oudh, Behar, the Central India Agency, nor in the major portions of the Central Provinces, though in these latter it has been observed occasionally near Chanda, and is common in the Raipoor anh Sumbulpoor districts. It does not extend into any part of British Burmah. It is normally a bird of the heavier rainfall and better wooded provinces, though it certainly occurs in the comparatively dry uplands of the Deccan. It never ascends any of the mountain ranges, to the best of our belief, to any considerable elevation, but is essentially a bird of the plains country. With this reservation its range may be said to include Ceylon, Travancore, Cochin, the whole Madras Presidency, Mysore, Hyderabad, the Bombay Presidency south of the 20th degree N. Lat., the Southern portions of Berar and the Central Provinces to about the same latitude, Raipoor and the Eastern States of these provinces, Orissa, the Tributary Mehals, Chota Nagpoor and Lower Bengal west of the Burrumpooter. I have never yet seen it from any of the districts east of this, *e.g.*, Chittagong, Cachar, Tipperah or Sylhet, though at Dacca, immediately west of this river, it is common. Nor have I seen it from Assam, though said to occur there, and though Godwin-Austen records a specimen from the Khasya Hills.

—*Anthreptes rectirostris*.—The author considers that the name *phœothorax*, Hartlaub, 1861, must be put aside for the older title *rectirostris*, Shaw, 1811, founded on Le Soui manga á bec droit, Aud. et Vieill. The type specimen is in the Museum of the Jardin des plantes Paris, and we are informed agrees perfectly. We had always hitherto (*e.g. ante* 142 *n.*) following numerous authorities, considered Shaw's *rectirostris* as equivalent to *singalensis*, Gm.; but having

* We print in capitals the names of those species that occur within our limits.

looked the matter up, we find that whatever *rectirostris* may be, it certainly is not *singalensis*.

The synonomy includes *Cinnyris elegans*, Vieill, *Nectarinia fantensis*, Sharpe, and *N. tephrolæma*, Sharpe, (*Ibis*, 1872, p. 69.)

—*Anthodiæta tephrolæma*.—Captain Shelley's description of the female differs from that given by Mr. Cassim, in fact in this matter he follows Sir W. Jardine and Dr. Hartlaub.

—*Urodrepanis christinæ*,—This is the author's first new genus. It is thus shortly described:—"Similar to *Æthopyga*, but with the two centre tail-feathers abruptly narrowing into fine points."

Whether it is desirable to create new genera on such very minor differences is to say the least doubtful.

pl. 4. *Cinnyris mariquensis*.—The author here employs the name *mariquensis*, Smith, and refers *bifasciatus*, Shaw by which it has been generally known to *Jardinei*, Verr.

—*Cinnyris bifasciatus*.—The author shows that the name *bifasciatus* should be applied to the West African species, being founded upon one of Perrein's specimens from Malimba.

He also gives reasons for recognising four species nearly similar in plumage, but differing in size, from four of the African sub-regions, but many ornithologists would, we suspect, hesitate to adopt this view, while some would doubtless unite all four races under Shaw's name.

pl. 5. *Cinnyris gutturalis*.—Captain Shelley recognises three other closely allied species, *C. senegalensis* from West Africa, *C. acik* and *C. cruentatus* from North-East Africa.

pl. 6. *Neodrepanis coruscans*.—This species is here figured for the first time, the plate is good, and shows the peculiar sinuated form of the first primary. The upper figure represents the type specimen which Captain Shelley presumes to be the immature male, the lower represents the adult male. We should be much disposed to suspect that the first was really a female, and that the sexes will be found to be chiefly distinguished by the absence or presence of the wattles.

The author forms a new sub-family *Neodrepaninæ* for the reception of this Madagascar species.

Part I further includes four illustrations without letter press.

pl. 7. ÆTHOPYGA DABBYI.—Here the female is figured for the first time.

pl. 8. CINNYRIS BRASILIANUS.—This is *Nectarinia Hasseltii* Temm. We have already in a separate article (Notes on

Nomenclature, II.) expressed our concurrence in the use of the term "*brasilianus*."

pl. 9. *Cinnyris amethystinus.*—

pl. 10. *Promerops cafer* which can scarcely be included in the *Cinnyridæ*.

Part II appeared 29th November 1876.

—*Cinnyris kirkii.*—A new species founded upon the East African form of *C. amethystinus*. It is very close to that species, but smaller, and the upper tail-coverts are brownish-black like the back, with no portion of them metallic.

—ÆTHOPYGA DABRYI which was figured in the first part is here described. It is quite refreshing to find the name correctly spelt, English authors having rung almost every possible kakographical change on it, dabrii, debrii, abrii, &c.

We found this species not uncommon at Mooleyit in the Central Tenasserim Hills and shall have some remarks to make about it, when dealing with the avifauna of that province.

pl. 1. *Cinnyris verreauxi.*—Both sexes possess bright pectoral tufts. The author places this bird in his "sub-metallic group" which appears to be nearly equivalent to *Adelinus* Bonaparte.

Captain Shelley gives some original notes upon this rare and very local species.

pl. 2. *Cinnyris olivaceus.*—This species is here well figured for the first time.

The author places it in his "Olive group," which is nearly represented by *Elæocerthia*, Reichb. He considers its nearest ally *Anthreptes hypogrammica*; this may be so, but both this species and *obscurus* have always reminded us most of the Asiatic *Arachnotheræ*.

—*Nectarinia cupreonitens.*—The new species from North-East Africa and Senegal already referred to. The type is a male in the British Museum from Abyssinia.

pl. 3. *Cinnyris notatus.*—

pl. 4. *Cinnyris superbus.*—

There are some original notes upon this species, as it was met with by the author "in the lofty forests of the Aguapini mountains."

pl. 5. *Cinnyris johannæ.*—The adult male and female are here well figured for the first time.

To the synonomy of this species is added *Nectarinia fasciata*, Jard. and Fraser.

From *Cinnyris superbus*, "the female is distinguished by the striped breast, and by the under tail-coverts not being orange-yellow."

The author met with it at Abouri during his travels in the Aguapim mountains, and was evidently much struck with its beauty.

pl. 6. *Cinnyris talatala.*—

The author places this bird in his "white-breasted section" of the "pale metallic group."

pl. 7. *Cinnyris albiventris.*—The adult male and female are here figured and described from the type specimens in the Strickland collection at Cambridge, said to be in very bad condition. According to the author it is a well-marked species, which "should be arranged between *C. venustus* and *C. talatala.*"

pl. 8. *Cinnyris afer.*—

Captain Shelley, we find, refers *Nectarinia ludovicensis,* Bocage, to this species.

He places it in the "ashy-breasted section" of his "pale metallic group."

pl. 9. *Cinnyris chalybeus.*—The adult male and male in moult are figured. The female, which is similar to that of *C. afer,* is not figured. The author had opportunities of observing its habits while he was in South Africa, but he does not tell us much about it.

. 10. *Cinnyris chloropygius.*—The adult male and female are figured.

The author met with this bird on the Gold Coast near Cape Coast Castle and in the Aguapim Mountains.

—*Promerops cafer.*—This species was figured in the first part.

The author gives some original notes upon this species, which he frequently met with in Cape Colony.

—*Promerops gurneyi.*—There are no figures given of this or the following species.

—*Anthrobaphes violacea.*—He considers this species to form "the connecting link between the African genus *Nectarinia* and the oriental *Æthopygà.*"

We do not know why the author designates the genus *Anthrobaphes,* the derivation (Cab. Mus. Hein., I., 103) is ἀνθοβᾰφής

Part III. appeared 27th February 1877.

pl. 1. *Cinnyris fuscus.*—

pl. 2. *Cinnyris dussumieri.*—The adult male and female are here well figured for the first time.

pl. 3. ANTHREPTES HYPOGRAMMICA.—The adult male and female are figured. It is a pretty plate, but from

the position of the female the distinguishing characters of that sex, the absence of the steel-blue colour on the back of the neck and rump are lost.

The specific name *hypogrammica*, S. Müll., is apparently rightly chosen, as *Anthreptes macularia*, Blyth, was not described until 1843, when Blyth applied to the same species the fresh name of *A. nuchalis*.

pl. 4. *Cinnyris cyanolæmus*.—The adult male and female are here, we believe, figured for the first time.

Indeed the female does not appear to have been previously described.

pl. 5. *Eudrepanis pulcherrima*.—This and the next three species are some of the recent novelties collected in the Philippine Islands by Dr. Steere, (to whom we also are indebted for a number of beautiful specimens) and are here figured for the first time.

Of the present species only the type is known and the two figures are drawn from the same specimen.

The new genus *Eudrepanis* is here described by Mr. Sharpe for the first time.

pl. 6. *Æthopyga Shelleyi*.—Named after the author by Mr. Sharpe; is a lovely species.

The female is unknown.

pl. 7. *Æthopyga magnifica*.—Adult male and female are figured.

pl. 8. *Arachnothera dilutior*.—The figure represents the adult male, the only specimen known of this bird.

It was collected by Dr. Steere in the island of Palawan, and is the first instance of the genus *Arachnothera* being found in the Philippines.

pl. 9. *Cinnyris frenatus*.—

In the synonomy we find *Nectarinia flavigastra* and *N. australis*, Gould, referred to this widely-spread species.

This species is included it what the author calls "the yellow-breasted section of the Asiatic olive-backed group," which section comprises six species, all of which are described in this part, and their specific differences pointed out. We have already given a key to this group, *ante*, p. 70.

—*Cinnyris jugularis*.—The plate of this species is not yet issued.

pl. 10. CINNYRIS FLAMMAXILLARIS.—

—*Cinnyris rhizophoræ*.—The plates for this and the next four species have not yet appeared.

—CINNYRIS PECTORALIS.

—*Cinnyris bouvieri*—Is a new species collected by M. Petit at Landano, Congo, in West Africa.

Both the adult male and female are here described, but of the female the author observes: "I cannot be certain that it is not a hen of C. *bifasciatus*."

"The structure and plumage shows that it should be placed near *C. bifasciatus*, *C. osea*, and *C. venustus*, from all of which it is distinguished by its dark-brown breast."

—CINNYRIS ANDAMANICUS.

—*Nectarinia tacazze*.

We understand that the present work will comprise at least 12 parts, with 10 plates in each, so that the entire work will comprise not less than 120 illustrations. Of these, 30 have been now issued, as also the descriptions of 46 species, including 7 new ones.

We have been informed by the author that the reason of the descriptions being more numerous than the plates is in order to equalise the number of plates in the several parts, and if the present proportion is kept up, it will leave apparently four parts for index, classification &c.; but we suppose the author knows best what space will be required for this portion of the work.

Over 30 species that occur within our limits will be figured, and no Indian ornithologists, who keep up any kind of ornithological library (though these are necessarily but few), should be without this work.

Notes on Nomenclature II.

THE use by Captain Shelley, in his monograph of the Sun Birds of the name *Cinnyris brasilianus*, Gmel. (S. N., I., 474, 1788) for the species more generally designated *Hasseltii*, Tem., (P. C., 376, f. 3, 1825) has awakened the indignation of a contemporary (*Ibis*, 1877, 124)—"such a course," we are told, being "altogether opposed to the Stricklandian Code of Nomenclature."

I, however, very much question the correctness of this dictum, and am disposed to believe that a very general misapprehension exists as to what the so-called Stricklandian Code of Nomenclature *really* enforces.

The fact is, that the correct construction or interpretation of written documents requires some little practice and training, and is in a certain degree a science *per se* governed by fixed laws and proceeding on definite principles.

Now, in this present case, an almost universal confusion seems to exist between what the Code *enforces* as regards the *past*, and what it *recommends* as regards the *future*.

It is a generally received rule of construction that the part is to be interpreted by the whole, and that any doubts as to the letter of particular passages are to be cleared up with reference to the spirit or manifest intention of the whole document.

The first thing, therefore, essental to a right interpretation of the Code is a thorough mastery of its general intention—a clear realization in fact of the spirit in which it was conceived.

I do not hesitate to assert that, taken as a whole, the essential features—the leading principles of the Code—are these.

Priority is to be the rule of nomenclature; it is of such importance that, except in the most extreme cases, no name which has priority is to be set aside, but for the future greater care in framing new names is recommended.

In fact the Code virtually says: Don't meddle with your predecessor's work, except in the most extreme cases, but in the matter of your own work be careful to avoid their blunder there are scores of errors that you ought to beware of, but t fact that others have committed these very mistakes again which we warn *you*, will in no way justify your attempting t set *their* names aside."

The Code thus far is essentially a British one—it breathes a wise spirit of compromise; it is characteristic of the nation, in harmony with its whole traditions and practice, and ought to be sacred to all English Naturalists.

Of course Continental nations will not accept it. Compromise is, and always has been, foreign to their national character; with them everything, be it a revolution, a reform, a republic or a despotism, must be carried out to its logical conclusion—they are always to our ideas in extremes. As a fact they are always more nearly theoretically right than we are, but they are very rarely as successful in practice.

In one respect our Code is doubtless wrong; the rejection of all binomial names prior to 1766 is inconsistent with the fundamental principle of the Code, which is, that priority is to be the rule, and that absolute necessity alone justifies its disregard. It was *necessary* to reject names that were not *binomial*, but it was contrary to the whole spirit of the Code, to reject any truly binomial names, such as *Brünnichs*, many of *Brissons*, &c., because published prior to the appearance of Linnæus' XII. edition of his Syst. Nat.

In this respect our Code cannot possibly, I believe, stand, but until altered by as influential a consensus as that on which it

is based, we English, at any rate, ought to abide by it. Setting this one point aside, the Code is, I believe, thoroughly catholic, and in all respects a credit to our country, and it grieves me to see English naturalists hankering after the flesh pots of Egypt, and striving, under cover of a misinterpretation of the Code, and a confusion of its *recommendations* for the *future* with its rules for the *past*, to approximate to the practices of Foreign naturalists who, for the most part in nomenclature, as in all other matters, run, according to our sober British ideas, into extremes.

And now what does the Code say in regard to such changes as the Editors of the *Ibis* advocate when they gibbet Capt. Shelley for the use of the name *brasilianus*?

"A name may be changed when it implies a false proposition which is likely to propagate important errors."

Note how guarded the rule—it is not sufficient that the name implies a false proposition; it must also be liable to *propagate* errors, and these errors must be *important*.

Now the name "*brasilianus*," doubtless, implies a false proposition, but the time has long past when it could propagate any error—the species and its habitat being thoroughly well-known to science,—and the rejection of the name in such a case is therefore impliedly barred.

"If such proper names of places," say the authors of the Code, "as Covent Garden, Lincoln's Inn Fields, Newcastle, Bridgewater, &c., no longer suggest the ideas of gardens, fields, castles or bridges, but refer the mind with the quickness of thought to the particular localities which they respectively designate, there seems no reason why the proper names used in Natural History should not equally perform the office of correct indication, even when their etymological meaning may be wholly inapplicable to the object they typify."

We must not, however, halt here—this was the major proposition, but to it were appended riders, which not to quote would be to do injustice to the broad and comprehensive views of the framers of the Code. They go on to say—

"But we must remember that the language of science has but a limited currency, and hence the words which compose it do not circulate with the same freedom and rapidity as those which belong to every-day life. The attention is consequently liable in scientific studies to be diverted from the contemplation of the thing signified to the etymological meaning of the sign, and hence it is necessary to provide that the latter shall not be such as to *propagate* actual error. Instances of this kind are indeed very rare, and in some cases, such as that of *Monodon*, *Caprimulgus*, *Paradisea apoda* and *Monoculus*, they have

acquired sufficient currency no longer to cause error, and are *therefore retained without change*. But when we find a Batrachian reptile named in violation of its true affinities *Mastodonsaurus*, a Mexican species termed (through erroneous information of its habitat) *Picus cafer*, or an olive-coloured one *Muscicapa atra*, or when a name is derived from an accidental monstrosity, as in *Picus semirostris* of Linnæus, and *Helix disjuncta* of Turton, we feel justified in cancelling these names, and adopting that synonym which stands next in point of date. At the same time we think it right to remark that this privilege is *very liable to abuse, and ought therefore to be applied only to extreme cases* and with great caution. With these limitations we may concede that—

"11. *A name may be changed when it implies a false proposition, which is likely to propagate important errors.*"

The upshot is therefore clear; where a name implies a false proposition, and where that falsity is likely to propagate important errors, there, and *there only*, can any Englishman, who professes to abide by the British Code, consistently or with any show of justice, reject the name that has priority.

Now in the present state of ornithology, no ornithologist c[an] pretend that the name *brasilianus* (or the similar name *sing[u]lensis* of Gmelin, for our common *Anthreptes*), can possibly propagate *any* error; the habitats of both species are too well known to render this possible, and no excuse therefore remains under the Code for violating in these cases the fundamental law of priority.

It is quite intelligible that foreign naturalists who reject the Code (and rightly so, I think, so far as the exclusion of Brisson's Brunnich's and similar truly binomial names are concerned) should reject equally the name *brazilianus*, but that the editors of the *Ibis* should seek to found a reproach for an adherence to this prior name, on the Code which really enjoins this, indicates to my mind how imperfectly they have realized the really catholic spirit which breathes throughout this remarkable document.

"Unhappy Strickland! * * * *
* * * * * * * *
'Twas thine own *Custos* gave the fatal blow
And helped to plant the wound that laid thee low!"

And we may conceive our immortal naturalist folding his pinions round him and sinking in celestial despair into space with a murmured "et tu Salvine!" when his official living representative thus appeals to this, Strickland's great legacy to zoology, in justification of such a violation of its first principles.

The fact is English ornithologists are slowly falling away from both the actual precepts and the principles of the Code. The German Faust is leading the poor English Margaret from the paths of virtue, and English writers, who profess to stand by the British Code, are becoming participants in those very offences which Strickland so emphatically denounced.

"There is another source for this evil, which is far less excusable—the practice of gratifying individual vanity by attempting, on the most frivolous pretexts, to cancel the terms established by original discoverers, and to substitute a new and unauthorized nomenclature in their place. One author lays down, as a rule, that no specific names should be derived from geographical sources, and unhesitatingly proceeds to insert names of his own in all such cases; another declares war against names of exotic origin, foreign to the Greek and Latin, &c., &c."

Why all I said about my friend Dr. Finsch's massacre of the innocents, was mere milk and water to this fiery, uncompromising condemnation of the systematic pillage of the species and genera of our predecessors that the continental system permits, aye and approves and insists on. But there were English ornithologists found to defend the practice; there are English ornithologists who use these unlawfully begotten names, one or two even who actually themselves descend to these impious practices.

The pretext of a name being hybrid has of late, on several occasions, been put forth even by English writers as grounds for throwing aside a well-established prior title, and substituting some truly classically compounded name.

Poor Strickland! could he have conceived that such things would be done on the pretended authority of *his* Code?

"Can he smile on such deeds as his followers have done?" he, who never entertained even the faintest notion of setting aside a name on account of its hybridity, but only mildly remarked:

"Naturalists should be specially guarded not to introduce any *more* such terms into Zoology which furnishes too many examples of them already?"

But I will say no more on this subject now. For years I have been vainly endeavouring to obtain a copy of this Code, which a certain Zoological Hierarchy at home, are perpetually flinging at our heads, as authorizing this and forbidding that. At last, owing to the kindness of our ornithological Aristides, Professor Newton, I have obtained a copy, which I shall print *in extenso* in an early number, and I find that *our* Hierarchy has as notably obfuscated the plain and simple precepts of this Code as

in past ages did a more illustrious Hierarchy those of a still greater Code.

In *our* case, the Prophets and the Law, hang all upon these two precepts:

Thou shalt not meddle with thy neighbours' names, save under pressure of absolute necessity.

Thou shalt watch carefully lest thou fall into errors such as we now regret in our predecessors.

I have, in ignorance, alas! too often transgressed the latter law, but I know better now, thanks to the Code, what sins to guard against, and having made this public recantation survive in the humble hope of becoming, in due time, a *good codist*!

In conclusion, it is only due to the many friends I now number amongst continental ornithologists to add that, while I never can cease publicly or privately to denounce in the most unqualified terms the system so prevalent abroad of disregarding priority (on, as Strickland truly says, "the most frivolous pretexts") as one of "robbery and wrong," I am not so intolerant as to impute the smallest blame personally to those who, viewing that system as a beneficial one, work it o uncompromisingly to its logical conclusions.

I would argue with them; I would try and convince the that their system is one that sacrifices substance to shadow important facts to sound; that they have really no general Code, but are each working on their own separate modifications; that they had better join us and so at least have *some* (even if not the best conceivable) *absolutely fixed* basis for their nomenclature; but so long as they remain unconvinced, I hold them entirely right in adhering to what they believe in, and while persistently abusing their system and reviling their acts, I none the less feel for them, each and all, the regard and respect due to brother soldiers, who, though with greater talents and skill and in more exalted positions, are fighting on the same side and in the same cause as myself.

Catalogue of the Birds in the British Museum.

By R. Bowdler Sharpe.

Vol. III. Order—Passeriformes. *Sub-order*—Passeres. Group.—Coliomorphæ.

We have to acknowledge, with many thanks, another instalment of Mr. Sharpe's great *Prodromus*.

The present volume, embracing the families of the Crows (*Corvidæ*), Birds of Paradise (*Paradiseidæ*), Orioles (*Oriolidæ*), Drongos (*Dicruridæ*), and Wood Shrikes (*Prionopidæ*), deals with some of the most difficult and debateable groups, which ornithology has to systematize.

That the subject generally, in particular the intricate and difficult species questions involved have been dealt with in a masterly manner, follows naturally from the fact that Mr. Sharpe is the author of the treatise.

Nothing could be a more welcome addition to ornithological literature at the present time than this new volume; and if, as we believe, very few ornithologists of the present day will be found to concur in all Mr. Sharpe's wholesale amalgamations, this is to be attributed, perhaps, rather to his being somewhat ahead of his time than to any shortcomings on *his* part.

We ourselves have sat aghast as we perused the sanguinary pages, at the countless executions amongst, what we had fondly deemed, the most eminently respectable species; and while reluctantly admitting that in most cases our judge's sentence, harsh as it seemed, was warranted by the record, there are yet some few in which our unregenerated nature refuses to bow to the decree, and in which it seems to us that our author has permitted his pen, Cossack-like, to massacre the most innocent and irreproachable species.

As an example of such victims let us cite *Pica bottanensis* from Bhotan and Native Sikhim, with its uniform velvet-black upper surface without any trace of any pale rump bar, and its dark *Calornis-tytleri*-green tail. How can we agree to merge this in *Pica rustica*? Perish *bactriana* and *leucoptera*, but *bottanensis*! To us it seems simple murder, and doubtless every ornithologist will feel the same in regard to some one or other of the many "rubbed out" species. It is a poor species that has no friends; and in this, as in other cases, the friends of the deceased will want to know all about it, and we fear Mr. Sharpe will not have an easy time of it, for the next year or so, after this sanguinary campaign.

Still, though he may be wrong in some few isolated instances, owing to the lack of sufficient specimens, we feel certain that,

on the whole, Mr. Sharpe is very right; and that his refusal to admit any form as a valid species, which cannot be exactly defined and definitely separated from all other forms, is essentially correct.

This is not the occasion on which to criticise details; we shall have hereafter our small budget of matters wherein we differ from our author to submit for his consideration. Our chief object at present is to announce to all our readers the welcome news of the appearance of this third volume. Out of the 367 species described, more than one-sixth occur within the limits of our Indian Empire, so that, like its predecessors, the volume is one that even a working-field ornithologist out here can well afford to carry about with him.

But while we rejoice in what we have received, and gratefully congratulate our author on what he has achieved, we must, like the daughters of the Horse-leech, persistently cry for *more*, and urge upon him, and upon the authorities of the British Museum, the necessity for greater expedition in the publication of future volumes.

What *one* man *can* do that Mr. Sharpe, we know, *will* d[o], but having embarked on the publication of this memora[ble] catalogue, which, as we have said before, will form a new a[nd] advanced standpoint for the operations of at least one gener[a]tion of ornithologists, it behoves the Trustees to see that it is prosecuted with vigour, and that suitable assistance is afforded to the author.

Situated as he now is, it has taken Mr. Sharpe three years to prepare Vols. II and III, dealing with about 560 species. At this rate the work will be complete in about 90 years, of which at least 80 will, so far as Mr. Sharpe is concerned, (should he live so long which the Trustees can *hardly* expect) have been devoted to clerical labour, which could have been equally well done by far less-gifted men, and a great deal of it by mere clerks.

It is the falsest possible economy to use up our author's great powers in this way: having got a good man, the Trustees will, we hope, endeavour to do their duty to the country by getting the greatest amount of the *highest* kind of work out of him.

With a proper staff of assistants to relieve him of all clerical and manual work, Mr. Sharpe could probably deal with 2,000 species a year, and the whole catalogue might be completed, with appendices up to date, within 10 years.

Thus completed, the work would be alike honourable to the nation, the Trustees and the author; it would ensure almost inconceivable progress in exact ornithological research, and with it in the elucidation of many of the most crucially important zoological problems.

We all know how the wise king who found, in the suite of his Royal consort, a little maiden who could spin golden [illegible]d out of flax, wisely took care, despite his spouse's opposition, that [illegible] other service should thenceforth be required from this fairy's favourite but gold spinning, and how ultimately, when the old queen died, he married her.

But the moral which lies within the clear depths of this old legend, that nations and their special representative bodies, finding exceptional men, qualified by natural gifts and special training for special work of a high order, should, despite all red-tape opposition, utilize them for this, and this only, taking care that their time, energies, and talents are not frittered away on inferior work, and that thus, in the long run, their own names become indissolubly united in the roll of fame with those of the men whose genius they have enfranchised, is still hidden, it would seem, from the comprehension of even the so-called most highly-civilized communities.

It remains to be seen whether the Trustees of the British Museum will be content to dawdle on *super antiquas vias*, ob[illegible]ious of the spirit of the trust confided in them, or whether [illegible]y will combine in a vigorous effort to do their duty [illegible] the nation; and either by extracting an extra grant [illegible]om the treasury, or by a better administration of their finances, or by raising a public subscription, provide for Mr. Sharpe, and other good men at the museum, that ample additional assistance which is essential to secure to the country, and the world, the fullest advantage from their labours and from the collections under their charge.

A. O. H.

Astola, a summer Cruise in the Gulf of Oman.

By Captain E. A. Butler, H. M's. 83rd Regiment.

On the 13th May this year (1877), at my friend the Editor's request, * I left Kurrachee in the Telegraph Steamer *Amberwitch*, commanded by Captain Stiffe, and proceeded up the Mekran Coast in quest of the eggs of *Sterna bergii*, and any other species of sea bird that might be found breeding on the island of Astola.

* Ever since my own trip to Sind and cruise in the Gulf of Oman, I have been endeavouring to arrange for the visit of some competent ornithologist to Astola during the breeding season. Several schemes were devised, but all fell through, though last year as mentioned, S. F., IV., 473, through the kindness of Captain Wise and Mr. Ffinch of the Telegraph Department, a native boat was sent there and 3,000 eggs of *Sterna bergii* brought back thence, of which unfortunately only 25 were preserved!

This year, with the transfer of my friend Captain Butler to Kurrachee, our prospects brightened. The Chief Commissioner, Sir. W. Merewether, who is now, I regret to hear, about to leave us, and to whose kindness and assistance I have in past times owed

The island of Astola, * called also Satadip, Haft-talar, and by other names by different classes of natives, lies nearly in an east and west direction, about 24 miles S. W. of P[illegible] and 18 miles S. of the Kalmatti Creek, and the same distance from the nearest land.

From Kurrachee it is distant about 170 geographical miles, and from the mouth of the Hubb river, which is the boundary that divides Sind and the Mekran Coast, it lies a little north of west, and distant about 152 geographical miles.

It is about 2,800 yards in length by 1,000 yards in width in the broadest part, and is surrounded by steep cliffs, the highest points being about 260 feet above the sea-level. The southern side is bleak, having the appearance of a barren rock of whitish sandstone. On the northern side the shoals and inlets abound with turtle, and here there is a low sandy cape formed by the meeting of the sea from the opposite ends of the island; many detached rocks or remnants of the island dotted about in the sea give it further extension. It is perfectly barren and has no vegetation growing upon it, with the exception of two or three species of Salsola, probably *Sueda fruticosa* and *Salso[illegible] Griffithii* (called by the natives of Sind Láni), low succul[illegible] bushy plants, somewhat heather-like in growth and appearan[illegible]

much in ornithological matters, at once promised us the loan of a small Government sailing vessel, not at the time in use, and Messrs. Mackinnon, Mackenzie, the Managing Agents of the British India Steam Navigation Company, with that liberality which uniformly characterizes all their dealings where scientific interests are concerned, acceded, without a day's hesitation, to my request that the next of their steamers that left Kurrachee to go up the Gulf should tow up the little sailing vessel, that the Chief Commissioner had promised to lend us, to Astola.

Before, however, these arrangements could be carried out, the *Amberwitch* was ordered up the Gulf; and, through the kindness of the Chief Commissioner and the Commander of the *Amberwitch*, Captain Stiffe, it was settled that Captain Butler should have a passage in her, and that on her return she should call at Astola.

I take this opportunity of thanking most cordially all those by whose kind assistance my long-smothered project of a raid upon the sea-birds of Astola has at last bloomed out into full fruition—A. O. HUME.

* The following is Captain Stiffe's account of this island. To him I am also indebted for the sketch of the island at the foot of the chart.—A. O. H.

"*Astálúh* ' island, called also Satálúh, Haft-talár, and various other names by different classes of natives, is 2½ miles long, east and west, by ½ mile in breadth; it is table-topped, with cliffs all round and a partly detached hill at the west, and which is a little higher than the rest of the island. This peak is 260 feet above the sea and visible 20 miles. The island rises perpendicularly out of the sea, except on the north side, about the centre of which is a little sandy point, and at the north-west corner there is a sandy spit forming a little boat harbour. There are rocky ledges off both ends, and some detached rocks above water along the south face, but all are less than two cables from the cliffs, and the island may be approached on all sides to three cables.

"There is no water on the island, which is barren, and only frequented by boats from Muscat, which catch fish and large numbers of turtle.

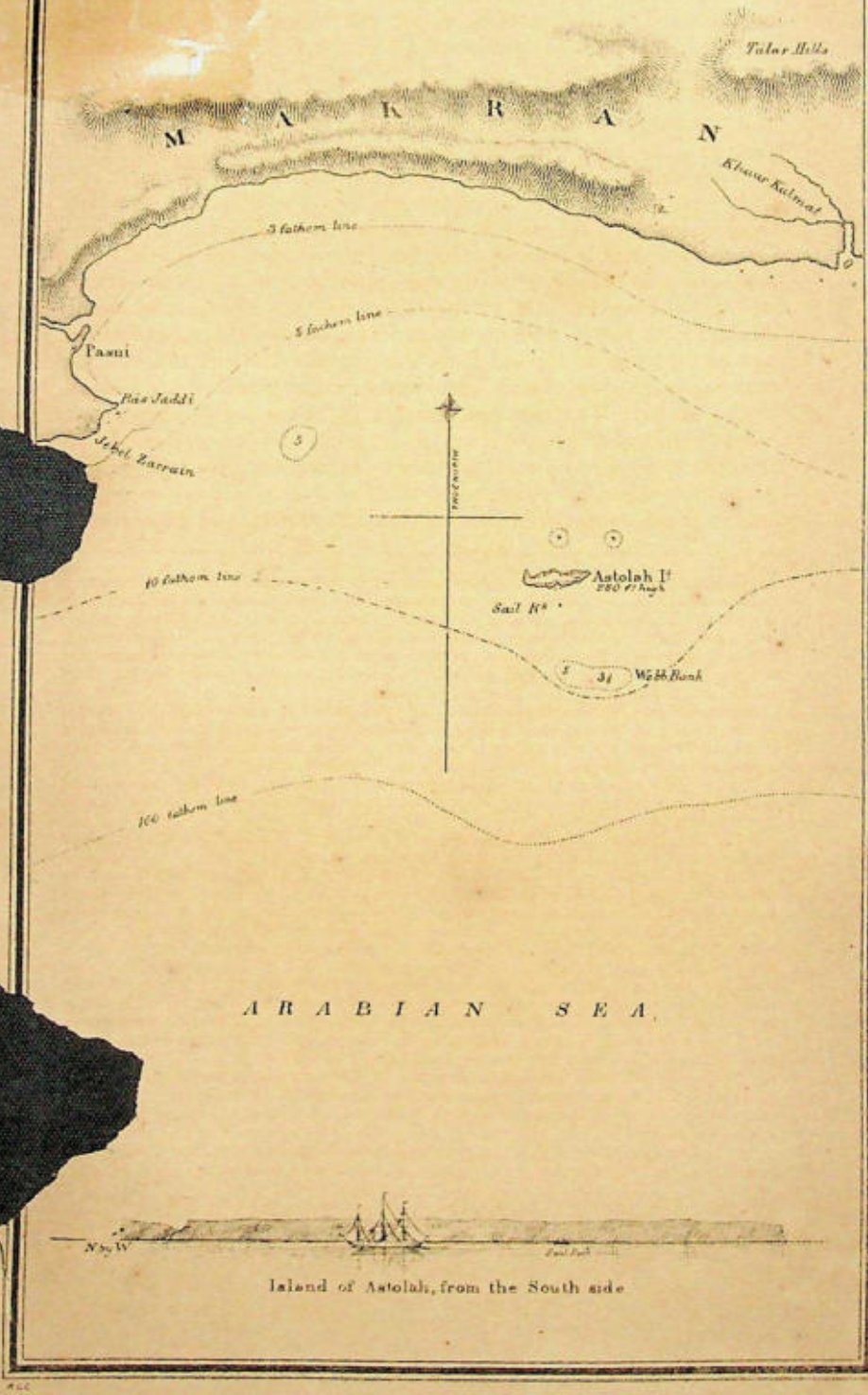
"*Sail rock.*—At seven cables from the centre of the south side of Astálúh is a little islet or rock, 20 feet above the water, which looks like a boat under sail. It is quite steep-to, and a vessel has passed between it and the island, which passage however is not recommended."

"' Captain Kempthorne, I. N., says this place was a rendezvous of the Persian Gulf pirates, and that the remains of a look-out tower erected by them were visible in 1829."

THE ISLAND OF ASTOLAH.

(To Illustrate Captain Butler's Paper.)





Island of Astolah, from the South side

which are scattered over a considerable portion of the plateau, and a few tussocks of coarse grass. We also noticed a few wild capers (*C. Roxburghii*) growing out of the cliffs on the northern side. There is no water on the island, and it is uninhabited, but at certain seasons of the year it is visited by Arab fishermen for the sake of the turtle. Hindu pilgrims also resort there to visit a rude shrine that exists on the summit of the tableland.

The ascent on the northern side is steep and difficult, and near the summit there is a rope fastened to a rock with steps cut in the cliff, by which those who ascend have to pull themselves up (a part of the undertaking which I personally should rather have avoided, as the rope looked very old and treacherous). The island is claimed by Mir Mandú, the Chief of Pusni. It is noticed by Nearchus, who calls it Carnine.

Geologically it is a fragment of the formation which Blanford calls the Mekran Coast group, supposed to be not older than the Miocene period. It consists of a thin crust of coarse shelly "breccia" abounding with all kinds of marine shells. The edge of the plateau is covered in many places with huge cracks, and ge heaps of "debris" below testify to the frequency of land-ps; in fact in a geological sense, it is being rapidly consumed combined denudation and the action of the waves.

Having now described Astola and the object I had in view, I will give a brief account of our cruise.

After leaving Kurrachee Harbour we steered for Jashk, one of the Telegraph offices on the Mekran Coast, about 520 miles from Kurrachee, arriving there in about four days.

For the first two days sea sickness prevented me from doing much in the ornithological line personally; but Captain Bishop, 1st officer of "the *Amberwitch*," was kind enough to keep a sharp look-out and reported to me whenever any birds were in sight. The only birds we saw during this part of the voyage were about eight or ten White Boobies (*S. cyanops*?) which occasionally visited the ship, flying alongside and crossing the bows after the fashion of tropic birds, sometimes singly, sometimes in pairs, and occasionally as many as three or four together; a few tropic birds (*P. indicus*), a few Noddies (*Anous stolidus*), a few Petrels (*T. wilsoni*?), about half a dozen Skuas (*S. asiaticus*?) and an occasional *S. bergii*, *S. bengalensis* and *Larus hemprichii*. Phalaropes (*Lobipes hyperboreus*) and Shearwaters (*Puffinus persicus*) were abundant all along the coast, as well as *Sterna albigena* and *Sterna anosthætus*, the latter species not appearing however until we were about opposite to Gwadar.

On arriving at Jashk we anchored for a few hours, during which time I went for a sail round the bay in the gig shooting

a Noddy and three Phalaropes. The former was fishing in company with a large flock of Terns, principally *S. albigena* and *S. minuta*, with a few *S. bengalensis*, and the latter I shot as they flew past the boat at long ranges. I also observed a few of *Larus lambruschini* in the bay, the only ones we saw during the trip, and these even had all left when we returned ten days later.

In the evening, after dining on shore, we weighed anchor and steered for Henjam, about 120 miles further up the coast in the Persian Gulf. During this portion of the voyage we noticed *S. albigena*, *S. anosthætus*, *Puffinus persicus*, *Lobipes hyperboreus*, and an occasional pair of *Sterna bengalensis*. All of the first four species were particularly plentiful off Ras Mesendom; and, as we passed through the channel that separates the island from the mainland, a fine old eagle, that was sitting on the rocks, came and paid us a visit, and after sailing two or three times round the ship returned to shore. I did not recognise the species; but, as far as I could judge, it was about the size, or rather larger than, *Aquila vindhiana*, with a whitish head, the upper parts including tail, brown, the latter appearing to be barred dusky, and the lower parts white *

I saw another pair of the same species at Henjam on the following day, but unfortunately could not get a shot at them.

We reached Henjam late in the evening, and the following morning, whilst Captain Stiffe was engaged in telegraph work, I took a stroll round the island, shooting a fine pair of *Sterna bengalensis* and a Kentish Plover (*Ægialophilus cantianus*), the latter having the testes much developed as if breeding. The only other birds I saw on the island were a solitary Shrike (*Lanius lahtora*), a few Larks (*Galerida cristata*), a pair of "Pity-to-do-its" (*Lobivanellus indicus*), and the pair of the Eagles, I have already alluded to. On the water outside, *Sterna albigena* and *Sterna anosthætus* were fishing in abundance; and occasionally we noticed *Sterna minuta* (?) and *Sterna bengalensis*.

Mr. Scroggie, however, who resides at Henjam, imparted an important piece of information which I must not omit, and that is that one or two pairs of *Houbara macqueeni* were breeding on the island, and that about six weeks before our arrival, *i.e.*, about the first week in April, a pair (♂ & ♀) were shot there, and that he extracted a perfect egg from the oviduct of the female, and put it under a hen to hatch, but that subsequently it was destroyed by rats. I am inclined to think that the greater portion of the *Houbara* that visit Sind in the cold weather breed in Persia and Afghanistan.

Mr. Scroggie also mentioned a species of crow that I had never heard of before. He said that it was plentiful at Fao

* Probably *Haliaetus leucogaster*, immature.—A. O. H.

at the head of the Persian Gulf at the mouth of the river Shat-el-Arab, extending up the Euphrates, at all events as far as Busrah and Bagdad. He described the bird as having a white body with black head, tail, and wings. On making further enquiries I found that it was familiar to all of the Telegraph people along the coast, and Captain Bishop told me that he knew the bird well also, and that two were sent to the Zoological Gardens in London last year. At first I thought that the bird must be *Corvus cornix*, but as every one assured me that the plumage was pure black and white, and that there was no grey about it, I must at present suspend my opinion.*

After cruising about opposite to Henjam for three days, attending to the repairs of the cable, we at length accomplished that troublesome task and returned to Jashk, observing nothing new *en route*. As we were delayed there for about 24 hours (25th May), I went on shore and shot four Desert Larks (*Certhilauda desertorum*), one Kentish Plover (*Ægialitis cantianus*) and one English Swallow (*Hirundo rustica.*)* The only other shore birds I noticed were the Crested Lark (*Galerida [illegible]stata*), a solitary Turnstone (*Strepsilas interpres*), and a large [illegible]ock of Flamingoes (*Phœnicopterus roseus.*) The latter rather [illegible]stonished me, as I thought they had all left the country some [illegible]time before. However these were no accidental exceptions to a general migration, as I noticed others in the Kurrachee Harbour after I returned as late as the 23rd June.

From Jashk we went to Charbar, anchoring for a few hours. Whilst stores were being put on board, I sailed round the bay in the gig, noticing several Gulls (*Larus hemprichii*), a few Terns, *Sterna bengalensis*, *S. albigena*, and a good sized flock of *S. bergii*. The latter were sitting closely packed upon a small rock about 10 yards from the shore, and being in full breeding plumage, I fired into them with small shot (No. 8), bagging five lovely specimens, four of which I preserved. I also shot a pair of *Larus hemprichii* in full breeding plumage, with the conspicuous white half collar.

On the following day we arrived at Gwadar, but saw nothing new; a few Noddies were fishing just outside the bay.

Next day we anchored off Pusni for a few hours, and thence proceeded to Astola, reaching the island at about 6 P.M.

* The crow, of which a specimen has been sent me, is clearly *C. capellanus*, Sclater, P. Z. S. 693, pl. LXVI. An albinoid form of *C. cornix*, but quite entitled, I think, to specific distinction. I had heard of this crow, and assumed that it must be *C. scapulatus* which v. Heuglin says he has heard of as occurring in Arabia. Directly I received a specimen, vile thing as it was, I saw my mistake and described the bird as new under the name of *C. Cappeli*, after Mr. Cappel, then Officiating Director-General of Telegraphs; luckily the P. Z. S. arrived just in time to enable me to withdraw the description from the last number of S. F: but it does seem to me about the most extraordinary coincidence ever heard of that I should have named it *cappeli*, after Mr. Cappel, and Mr. Sclater *capellanus*, or the *Chaplain* Crow.—A. O. H.

It was too late when we arrived on the evening of the 28th for ornithological work, so we dined punctually at 7 P.M. and went on shore afterwards to turn turtle. It was a bright moonlight night, and the party consisted of Captain Stiffe, Captain Bishop, and myself. As the gig approached the shore, we saw several huge turtles out on the sand, and we had not gone more than about 10 yards after landing when we discovered an enormous turtle close to the edge of the water. We rushed at him and seized him by the side and flippers, and tried our best to turn him over, but all to no purpose. He was too strong, and gradually forced us into the water, until we were knee-deep, when we thought it time to give up the attempt, so we let go, and off splashed the turtle in triumph.

Soon afterwards we "pugged" another one up the beach and found *him* (or rather *her*, as it proved to be a female full of eggs) comfortably seated in a large hole in the sand which she had scratched out to lay in. We tied ropes to her flippers and got half a dozen of the sailors to drag her out of the hole; and then, fastening her with the ropes to a couple of oars, we carried her to the gig and deposited her in the bottom of the boat.

We then observed another one lying a few yards out in the water further down the beach; and the sailors, availing themselves of a moment when a receding wave left her stranded, rushed up, passed a rope under her, and secured it to her flippers. Then commenced a most amusing "tug-of-war," the sailors, six in number, pulling with the usual noisy "halice, chalice," chorus on one side, against the sturdy old turtle on the other. The turtle's side at last began to give, and the sailors to cheer at the prospect of turtle soup for rations the following day, when suddenly the rope broke, and off went the turtle, leaving all of the sailors prostrate on the beach amidst a roar of laughter, as may be imagined, from the lookers-on. There were several other turtles along the edge of the water; but, as it was getting late, and we had a long day on the morrow in prospect, we gave up the sport (?) and returned to the ship to turn in for the night. Later in the evening the sailors captured another turtle and brought it on board. I do not know the species to which these turtles belong, but they are of enormous size, one of those we caught weighing 344lbs.*

The following morning we rose at 4 A.M., reaching the shore just as it was beginning to get light. The cries of *Larus hemprichii* and *Sterna bergii* were almost deafening as we ascended the steep cliff side leading to the summit of the island, and with the exception of one or two Crested Larks (*Galerida*

* Probably *Chelonia virgata*, which I have seen from Astola, and which sometimes grows to an enormous size.—A. O. H.

cristata) and a solitary Swallow (*Hirundo rustica*), there was not another bird to be seen. In fact, the only other living creatures we saw were two species of snakes, the first a very poisonous viper (*Echis carinata*), three of which we secured; the second a long thin snake, measuring about 3½ or 4 feet which I could not identify. Two or three species of sand lizard, one of which, a remarkably handsome species, was, as well as I remember, olive brown above, and yellowish white below, with a bright orange stripe extending from head to tail on both sides, and in some specimens exhibited on the lower back and tail as well. Length about 8 or 9 inches. There was a tree lizard on the island also, but we did not secure specimens. The shore was strewn with the dry carcasses of turtle which had been killed by Arab fishermen for the sake of the oil and feeding upon these, when we landed in the morning, were some good-sized rats of a very dark color, which I did not recognise.

The stench along the beach in consequence was intolerable. We brought specimens of the vipers, one of which measured 28 inches in length, on board, and put them with three of the ...nge-striped lizards into a bottle of spirits, intending to send ...m to Mr. Blanford for identification; but unfortunately Cap-...n Bishop neglected to cork the bottle securely, and in a few ...ys it burst, and the reptile portion of our collection was lost. Notes on the two species of birds we found breeding, *Larus hemprichii* and *Sterna bergii*, will be found further on.

Our trip was now virtually over, at least as far as collecting was concerned. We weighed anchor that evening at about 7 P.M., reached Ormarra the following morning, and the next day at daybreak we arrived at Kurrachee, terminating as pleasant a sea voyage as I ever made.

I must not here forget to express my sincere gratitude to Captains Stiffe and Bishop, and the other officers of the *Amberwitch*, for their extreme kindness and hospitality on board, and for the valuable assistance they offered me in collecting upon every possible occasion from the day we left Kurrachee until the day we returned.

Had the trip been made in the cold weather, we should, of course, have seen many more species of birds, and probably have secured many more good specimens; but, considering the time of year at which the excursion was made, and the collection we brought back, *viz.*, 93 eggs and about 30 good skins, I think on the whole we were very successful.

82.—Hirundo rustica, *Lin.*

Several pairs of the Common Swallow were breeding at Jashk, Persian Gulf, in the verandah of the Telegraph Office on the

24th May 1877. The nests, which were precisely similar to the nest of the English bird, *i.e.*, composed of mud, open at the top, and thickly lined with feathers, were stuck to the sides of the beams which supported the roof of the verandah There were ten or a dozen nests in all, containing fully-fledged young ones. Fresh eggs were procurable, therefore, probably about the end of March or beginning of April. The only specimen I procured measured as follows :—

L.	W.	T.	Bf.	Bg.	Exp.
7	4·75	3·62	0·31	0·59	12·75

770.—Certhilauda desertorum, *Stanley.*

The Desert Lark was common at Jashk ; and, although only out for a few hours, I succeeded in securing four specimens. The note is a clear monosyllabic plover-like whistle, uttered occasionally from the top of some rising piece of ground. In flight and appearance on the wing it reminds me more of the Hoopoes than any other family. I have noticed it occasionally on the maidan between Kurrachee and Clifton. Measurements of the four specimens obtained as follows :—

Sex.	L.	W.	T.	Bf.	Bg.	Exp.
♂	9·75	6·37	3·75	1 12	1·44	16·5
♀	8·75	4·56	3 37	1·0	1·25	14·87
♀	8 75	4·5	3·5	0·94	1·25	14·75
♀	8 75	4·75	3 5	1·0	1·25	15·25

Legs and feet China white, tinged yellow on tarsus ; irides brown ; bill flesh-colored below, brownish horn above.

848.—Ægialites cantianus, *Lath.*

The Kentish Plover was breeding on the bare sandy maidan at Jashk ; * and though I failed in finding eggs, I caught a young bird unable to fly, apparently about ten days old, on the 24th May, so that fresh eggs were procurable probably about the end of March or beginning of April. I shot one specimen, in winter plumage however, which measured as follows :—

Sex.	L.	W.	T.	Bf.	Bg.	Exp.
♂	7.	4·37	1·75	0·62	0·75	13·75

Legs and feet plumbeous, dusky on the feet ; irides blackish brown ; bill black.

890.—Lobipes hyperboreus, *Lin.*

The Red-necked Phalarope was plentiful at sea all along the Mekran Coast, and in the Persian Gulf as far as I went ; that is, up to Henjam. It seemed specially abundant off Jashk, Ras Mesendom, and Henjam. They are, as a rule, very wild and consequently difficult to procure ; and I only managed to shoot three

* Latitude 25°38 north.—A. O. H.

specimens, measurements of which are subjoined. They were all just commencing to change into the breeding plumage, with the red feathers of the neck partially developed.

Sex.	L.	W.	T.	Bf.	Bg.	Exp.
♂	7·25	4·25	2·19	0·81	0·94	13·25
♀	7·75	4·25	2·12	0·87	0·94	13·75
♂	7·25	4·25	2·12	0·87	0·94	13·0

Legs and feet lavender blue; irides brownish black; bill blackish.

972.—Mergus castor, *Lin*,

As already recorded by Mr. Hume, (S. F., IV., 496) on Captain [illegible]'s authority, the Merganser is not uncommon along the Persian Coast, and in the Persian Gulf during the cold weather, specimens at any rate occurring as late as July. I hear of its occurrence at Jashk, Charbar, and one or two other [illegible] along the Coast.

976.—Thalassidroma wilsoni, *Tem.*

I observed Wilson's Petrel on several occasions during the passage along the Mekran Coast, but only secured one specimen. Captain Bishop shot another, but unfortunately it was only slightly wounded, and rose again off the water and escaped. They are usually met with singly or in pairs; but sometimes three or four may be seen together, and they fly lazily backwards and forwards just above the surface of the water, as Jerdon justly remarks, "much resembling Swifts both in general appearance, colours, and flight." They were by no means common anywhere along the coast, but seemed most numerous between Charbar and Pusni. They are very fond of hovering about anything floating in the water. In fact, the two that Captain Bishop and I shot were attracted by a heap of grass that was thrown overboard; and, in company with a third, they remained flying backwards and forwards over it until we shot the two above mentioned. I never observed them running on the waves as described in the case of the Stormy Petrel (*T. pelagica*). My specimen corresponds exactly with Morris's plate and description, (Morris's British Birds, Vol. 6, p. 243,) and I have no doubt, when Mr. Hume receives it, as it does not appear to have been hitherto recorded from India, he will add the description. The pale yellow patch in the centre of the webs is very striking and characteristic.

The stomach contained very minute spawn.

[Oceanites oceanica, *Banks*, Forst. Draw. No. 12.—*Kuhl*, Brit. Mus. Monog. Proc. 136, t. 10, f. 1.

Wilsoni, Keys et Blas. Wirb. Eur. II. 238, nec Bp.

The Storm Petrel, sent by Captain Butler, the first of the group which I have examined from our Indian Seas (though I have *seen* many at sea), belongs to the larger Australasian race of the American species which Bonaparte named *Wilsoni*.

By mere chance I had by me a specimen from the Atlantic, of the true *Wilsoni*; this is somewhat smaller than the present bird, which corresponds in size exactly with a specimen from Australia.

The Atlantic specimen, a male, has the wing 5·8 and the tarsus 1·32. Our present specimen, a female, has the wing 6·25 and the tarsus 1·4. The bill too is larger; but beyond this difference in size I cannot detect any grounds for separating the Eastern and Western forms.

The present specimen (♀) measured in the flesh:—

Length, 7·12; expanse, 16·37; tail, 3·0; wing, 6·25; tarsus, 1·4; bill at front, 0·5; from gape, 0·7. Outer toe and claw, 1·15; second quill longest; 1st, 0·3; 3rd, 0·35 shorter. Longest primary 3·8 longer than 1st secondary. Hind toe obsolete; hind claw just visible as a tiny spur at the base of the tarsus.

General plumage deep sooty brown, blackish on [illegible] tertiaries, occiput, nape and tail; secondary greate[illegible] and latest secondaries wood brown or pale hair brown, narrowly margined towards the tips with yellowish white; upper tail-coverts, flanks, and bases of some of the external lateral under tail-coverts pure white. Some few of the feathers of the lower middle abdomen very narrowly fringed with white; bill dull black; legs and feet polished black, with a conspicuous pale yellow patch in the centre of each web; irides blackish.

Davison observed large numbers of this species one year in July about the Moskaws, a group of islands off the Tenasserim Coast, just north of the Mergui Archipelago. They are believed to breed on this island, but the weather rendered it impossible to lower a boat.—A. O. H.]

976 *bis*.—Puffinus persicus, *Hume*.

Whether this Shearwater = *P. obscurus*, Gould, or not I cannot say; but, if not, it is certainly a very closely-allied species. It is common all along the Mekran Coast, but of a shy nature, and consequently difficult to procure. I never saw one on the wing within shot of the boat, but occasionally, when resting on the water, they allowed the steamer to approach within range, and it was in this way that I shot the only specimen I secured. Morning and evening they may be seen, always far out at sea, sailing along close to the water, skimming often over [illegible]eral waves with wings extended and motionless, and then co[illegible]

their wandering course for some distance with rapid strokes of the wing. They have a peculiar Plover-like habit, when flying or turning from side to side, looking dark one second, and light the next, as they show their white breasts and dark backs alternately.

The measurements of the specimen I shot were as follows : —

Sex.	L.	W.	T.	Bf.	Bg.	Exp.	Ts.
♀	13·	7·87	3·5	1·2	1·75	27·	1·5.

Legs white, with an opalescent gloss ; lower part of tarsus and outer toe blackish ; outer side of centre toe and under side of all the toes dusky black ; bill pale lavender, dusky at tip and on the upper mandible ; irides dark brown.

[This second specimen of *Puffinus persicus*, also a female, has the quills perfect, and the wing measures 7·87. The females in this genus run rather smaller than the males, so that in this latter sex the wings will certainly measure 8·0.

This specimen is precisely like the type, except that it has more white on the sides, and less on the lores. There is the same white ring round the eye, and the same streak, but less well defined, backwards, from the eye.

Mr. Blanford (*Ibis*, 1873, p. 215 ; Zool. Pers., 293) considers that he has shown that this is probably a variety of *P. obscurus ;* but agrees with me that it is certainly not *anglorum*. Of this latter there is now no doubt, as I have compared specimens.

As to *obscurus*, my bird is certainly not the species identified by Yarrel as the Dusky Petrel, of which he measured 6 specimens, all of which had the wings 6·75.

Nor is it the *obscurus* of Temminck (Man. d'Orn, 2nd edition, 808,) with the "Bec très grêle" (for the bill is as stout as in *anglorum*,) and the tarsus 1·65, (that of both our birds being barely 1·5.)

But it might for all that be the true *obscurus* of Gmelin (S. N. I. 559.).

This was founded on the Dusky Petrel of Lath., Syn. III. 2,416.

Latham's description is as follows : —

"Length 13 inches ; bill one inch and a half ; colour black, with horn-coloured sides, point hooked ; in the usual place only two small holes serving for nostrils ; the upper parts of the body dusky black, the under white ; on the sides of the neck brown and white mixed ; the edges of the middle wing coverts are whitish. The legs placed quite in the vent, black, but the inside pale the whole length and the two inner toes yellowish ; the webs orange ; *claws* black.

"Inhabits Christmas Island."

Now this description which is the sole foundation of *obscurus*, Gmelin, might apply to many species, and indeed it has been, as we have seen, erroneously applied by some writers, in fact, nearly European writers, to a small, slender-billed species, but to our species it *cannot* apply.

In the first place the length (taken from the *skin*, as Mr. Blanford remarks, so that the fresh bird must have been 14) is too great. In the second place the bill 1·5 is also much too large. Whatever species Latham's and Gmelin's *obscurus* really is, it was as much larger than our bird, as Temminck's and Yarrell's was smaller.

Lastly, the edges of the middle wing coverts are *not* whitish.

Every other part of the description would do for half a dozen different species; in those sole points in which it is possible to test the description, this latter differs from our species.

That somebody may have called specimens of *persicus*, *obscurus*, I will not for a moment dispute, but I submit that it is neither the true *obscurus* of Latham and Gmelin, nor the smaller *obscurus* of Temminck, Yarrell, &c.—A. O. H.]

977.—Stercorarius asiaticus, *Hume*.

I observed the Skua, referred to by Mr. Hume, S. F. Vol., I. 268, on several occasions, but was unable to procure specimens. I only saw about a dozen in all, and those were along the Mekran Coast between Pasnee and Gwadar. They seemed very wild, and would not allow the steamer to approach within 200 yards of them, so that I had no opportunity of making notes of the species.

[Mr. Howard Saunders, in his recent excellent paper on the STERCORARIINÆ (P. Z. S. 1876, 327), positively and without any note of interrogation, or indication of doubt, identifies my *Stercorarius asiaticus* (S. F., I, 269, 1873), with Richardson's Skua, (*S. crepidatus*, Banks, Gm. &c., *apud* Mr. Saunders).

I think it is to be regretted that some European ornithologists should so confidently assign names given by others to supposed distinct forms, to species already well known, without ever even *seeing*, let alone carefully examining the said supposed distinct forms.

In the present instance Mr. Saunders is, there seem good reasons to believe, by no means happy in his identification.

I have now five specimens of Richardson's Skua before me.

Two young in the mingled brown and pale rufous buff plumage, and with the yellow legs and half feet, the terminal half of each foot being black or blackish. One from the coast of Norway, the other that of Belgium (E. Mus. Howard Saunders); neither are sexed. They measure:—Wings, 12·4, 12·5;

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CALCUTTA

bill from edge of feathers (very clearly defined in these birds), straight to tip, 1·14, 1·16, from gape to tip, 1·7, 1·78; tarsus, 1·73, 1·78; mid toe and claw, 1·65, 1·67.

Three adults, one entirely white below, except a grey band across the breast and with a yellowish white nuchal collar from Orkney, sexed a male; two entirely fuliginous, one from Iceland collected by Mr. Procter, and one from Norway. These measure (I give the dimensions in the order that I have mentioned the specimens):—Wings, 12·0, 12·6, 12·4; bill in front, as before, 1·18, 1·19, 1·18, from gape, 1·8, 1·82, 1·79; tarsi, 1·77, 1·74, 1·7; mid toe and claw, 1·58, 1·65, 1·67.

My bird is a male, *immature*, as it still has the striated crown and nape, but not very young (probably about 20 months old), as the chin, throat, and abdomen are white (a few stria only on the two first), the barring is confined to breast and flanks, the pale tippings have mostly disappeared from the upper plumage, and the legs, feet, were entirely black. Well, the corresponding dimensions of my bird are:—Wing, 12·85 (it was 13 full in the fresh bird, but as I am comparing with skins, I take the present existing dimensions); bill at front (as before from edge of feathers), 1·33, from gape, 1·94 (it was 2·02 in the fresh bird); tarsus, 1·81; mid toe and claw, 1·8.

Let us contrast the dimensions.:—

	Wings.	B. at ft.	B. fr. g.	Tarsi.	Mid Toe and Claw.
5 specimens of Richardson's Skua, 3 adults, 1 certainly male.	12·0—12·6	1·14—1·19	1·7—1·82	1·7—1·78	1·58—1·67
1 specimen *asiaticus*, immature male.	12·85	1·33	1·94	1·81	1·8

Primâ facie, therefore, ours is a somewhat larger bird, with an appreciable longer bill and longer foot.

Then the bill is very decidedly broader in *asiaticus* for the basal half than in any of my specimens of Richardson's Skua; the corneous portion is larger, the upper mandible is more depressed at the base, and with the lower mandible is shallower than my specimens of this latter bird. Again, the lower mandible is less feathered. In all my specimens of Richardson's Skua, the feathers terminate in a well-defined point exactly one inch from the point of the lower mandible. In *asiaticus*, this point is 1·15 from the point. I am well aware that in such a case five specimens is a very narrow basis from which to argue; I merely note these points for what they may hereafter prove worth.

Then I observe that, as pointed out by Mr. Saunders, in all my five Richardson's Skuas, the shafts of all the earlier primaries are white alike in old and young, only brownish towards

quite the tips. But in *asiaticus* the third quill has only about the basal half of the shaft white, and the fourth and succeeding quills have only quite the basal portions white, the terminal portions being brown. A very small point; but if you open the wings side by side, the difference catches the eye at once.

Besides this, I do not say that it is worth much; but when a man has for many years been examining carefully great numbers of specimens of a vast number of species of all ages, he does acquire a sort of instinctive feeling on these points; the birds do not *seem* to me to belong to the same species.

The plumage is less dense and harsher in *asiaticus*, and there are other similar minute points that though of no importance singly, cumulatively incline me to believe that *asiaticus* is distinct—a belief strongly confirmed by the fact that our birds appear to be *permanent residents* of the Persian Gulf and Gulf of Oman, and have been noticed there, not only during the autumn and winter, but also in May and June and throughout the monsoons.

I need scarcely remark that our bird is too small for the Pomarine Skua, but I may note that it lacks the shagreen h[illegible] backs to the tarsi which characterize that species.

For the long-tailed Skua, all its dimensions were rather t[illegible] large; its tarsi were black, not leaden blue, and it exhibits n[illegible] trace of any crest.

We must, of course, patiently await further specimens before expressing a positive opinion, but in the meantime, most certainly, no sufficient evidence exists for uniting *asiaticus* with Richardson's Skua, which latter has never been observed east of the Cape of Good Hope, and which even on the western coast of Africa is only a winter visitant.—A. O. H.]

981 *ter*.—Larus hemprichii, *Bonap*.

This was the only species of Gull we saw during the trip, and all about the coast from Kurrachee to Jashk it was more or less plentiful. The island of Astola, however, seemed to be its head-quarters, and there we found them collected in thousands, doubtless for breeding purposes. Unfortunately, we arrived too soon. There were no eggs on the date we landed (29th May), although for two miles the island was covered with the birds sitting about as tame as barn-door fowls, and uttering that peculiarly mournful cry which they keep up all through the breeding season, and cavities in the sand, looking like nest holes were scratched in every direction. I was greatly disappointed at the time at not getting a single egg, and tried to get a boat sent there for the eggs from Gwadar ten or twelve days later, but the sea got rough, and the boatmen were afraid of getting

in the monsoon, but I am making other arrangements, still hope to get the eggs this year in some way or other.

I may mention that in the breeding season the dark half collar of the neck is separated from the smoky brown of the back by a very conspicuous broad white nuchal collar nearly, if not quite, an inch in width, and that all the dark feathers of the neck, both in front and behind, are of a much deeper colour and more clearly defined than in the cold weather plumage. The bird described by Mr. Hume, *ante* Vol. I, p. 280, is in the cold weather plumage.

[The following are the dimensions of three beautiful specimens, all females, preserved by Captain Butler, who is certainly in my opinion the most accomplished taxidermist in India :—

L.	Ex.	T.	W.	Ts.	B at fr.	B. fr. g.
18·5	44·5	5·0	13·25	2·1	1·87	2·62
18·25	43·5	4·5	12·62	2·1	1·93	2·63
17·5	43·5	5·0	13·62	2·0	2·0	2·5

The birds in breeding plumage had the legs and feet pale yellowish drab; the bill pale greenish drab, tipped red with black bar near the tip; irides dark brown.

The entire head, chin, throat, and central portion of front of upper two-thirds of neck deep brown, with a combined tinge of chocolate and soot. Everywhere towards the margin of the area thus covered, and especially on the nape the colour grows deeper, and where it terminates abruptly on the nape is almost black; the back and sides of the neck are covered by a pure white collar, very sharply defined above, and shading below into the grey sooty brown of the base of the neck all round and breast.

The entire mantle and wings deep brown inclining to chocolate; all the secondaries and all but the first few primaries (and sometimes even these) tipped white; wing lining, axillaries, and sides deep brown; middle of breast, abdomen, vent, flanks, upper and lower tail coverts, and tail pure white; edge of wing below carpal joint whitish.

Von Heuglin remarks (Orn. Nord. Ost. Afr. 1400) :—

"The picture of *Larus hemprichii* given in the Transactions of the London Zoological Society (VII., pl. 27) is sufficiently defective; in that the colours of the bill, jaw, eyelids, iris, and feet are all quite wrongly given. Moreover, the white nape band is omitted, and the head and mantle are not naturally coloured."

Now I give up the feet, irides, and bill, the colours of which in the non-breeding season I have given, Vol. I, p. 279, but as regards the white nape band, I beg to remark that, in my opinion,

this is entirely seasonal, and that, so far as its absence [illegible] colour of head and mantle are concerned, the plate of the [illegible] represents fairly enough a cold weather specimen. Certainly, I saw thousands at that season, but not one of them exhibited any signs of the white nape band.—A. O. H.]

986 *bis*.—Sterna albigena, *Licht.*

This was one of the commonest species we met with, being plentiful all along the coast from Kurrachee to Henjam, and associating often in numerous flocks. What I take to be the young bird of the year is pure white below instead of grey as in the adult, but I am not sure that the grey under surface is anything more than seasonal.

At Jashk I saw an immense flock of Terns fishing at the entrance of the bay, consisting principally of the present species and *S. minuta* (?), with a few *S. bengalensis* and a solitary Noddy. I ran the gig through the flock to make sure of the different species, bagging the Noddy with an easy shot as it rose off the water. I have no doubt that *Sterna albigena* breeds along the coast, but probably later on as we found no eggs.

In the full breeding plumage the white cheek patch is very conspicuous and assists one in identifying the species, often at a considerable distance. I shot no specimens, as they are common in the Kurrachee harbour, whence I had obtained specimens previously.

Measurements of a bird shot in the Kurrachee harbour as follows:—

Sex.	L.	W.	T.	Bf.	Bg.	Exp.
♂	14·25	9·5	5·5	1·5	2·06	2·8

Legs and feet bright red; bill blackish, lake towards the base; irides blackish brown.

989.—Sterna bergii, *Licht.*

Nearly all of the large Sea Terns we saw were collected in groups on the island of Astola for the purpose of breeding, and I have no doubt that the few stragglers we came across along the coast intended going there for the same purpose later on.

I subjoin an extract from my nesting memoranda describing the scene:—

"On the 29th May 1877, I landed at Astola, an island on the Mekran Coast, which I have previously described about 24 inches S. W. of Pusnee. On reaching the summit, I found the plateau covered from one end of the island to the other with *Larus hemprichii*, which were evidently collected there for breeding purposes, but there were no eggs on that date, although

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what appeared to be nest holes were scratched in every direction. These, however, may only have been *dusting* holes such as hens scratch, for I noticed the birds *dusting* their feathers as they sat and grovelled in the holes.

Several groups of the large Sea Tern had just commenced to lay, and I succeeded in taking 93 eggs, all perfectly fresh. The birds make no nest, neither do they even scratch a nest hole. The eggs (at that time only one in each nest, or rather to each pair of birds, for as I have said before there is no nest) are laid on the bare ground in the most open and exposed parts of the island about one foot apart, and when sitting the birds seem packed together as close as possible, without perhaps actually touching each other. There is no difficulty in discovering the eggs, as the birds, often as many as two hundred or more in a group, sit close with quantities of stragglers, probably the cock birds, flying backwards and forwards a few yards above them, the whole keeping up a tremendous clamouring, and when approached they rise reluctantly off their eggs screaming and chattering loudly. I did not see the first group rise myself, and there were hundreds of Gulls (*L. hemprichii*) mixed with them, when I approached the eggs, I thought it best to sit down a few yards off, and watch the birds return to their eggs. No sooner had I done so, then both species began to descend in dozens on to the spot where the eggs (about 30) were lying. In a moment a general fight commenced, and it was at once evident that the eggs belonged to *Sterna bergii*, and that the Gulls were carrying them off, and swallowing their contents as fast as they could devour them. So up I jumped and ran forward yelling like mad, and on reaching the spot found that even in that short time the Gulls had destroyed upwards of a dozen. I took the remainder and proceeded in the direction of two more groups, which raised the number to 46. Other groups were collected on the island, but they had not yet laid, although they were sitting closely packed on their selected breeding grounds. Having now walked all over the island I returned to the *Amberwitch* for breakfast, after which I blew eggs till 3 P.M., and then returned to the island to see if any more birds had laid. I revisited the spots where I had taken eggs in the morning, but found no more eggs, although the birds were all sitting on the same ground in groups as closely packed as they were in the morning before their nests were robbed. I was beginning to despair of getting any more eggs, when my attention was attracted by a large group of birds which I had somehow missed in the morning. On approaching them, they rose as usual with a tremendous clamour, leaving 47 more beautiful fresh eggs for me to add to my collection. This swelled the number to 93, which is

all I got.* The space covered by the last batch was not more than 6 ft. or 8 ft. square.

It seems evident that the birds lay in groups to protect their eggs from the ravages of Gulls and other birds. The eggs vary so much in coloration and markings that I shall not attempt to describe them in detail, but shall refer the reader to Mr. Hume's description, IV., p. 493. I may mention, however, that of the 93 eggs now before me scarcely two are alike, and one beautiful specimen has the ground color a sort of rich salmon fawn, with markings exactly like Arabic characters. In fact so like that some natives on board the *Amberwitch*, when they saw the eggs, said that it was covered with Arabic writing; and, when we told them that these birds always wrote their names on their eggs in Arabic with their bills so as to know their own nests when they returned from feeding, they believed us!

It is necessary to be very careful in blowing the eggs of this species, as the colors run and wash out if they are wetted in the slightest degree.

[Three splendid specimens, in full breeding plumage of this species measured in the flesh by Captain Butler, gave the following results, which I record for comparison with those given a large series from various localities, Vol. IV., p. 471 :—

Sex.	L.	Ex.	T.	W.	Ts.	B. at front.	B. from g.
♂	21·5	46·5	8·12	15·12	1·38	2·75	3·67
♀	21·0	46·0	8·37	14·75	1·25	2·62	3·38
♀	20·75	46·0	7·62	14·87	1·3	2·75	3·57

Bill pale yellow; legs and feet black; soles yellowish; irides deep brown.

All have the lores and a broad frontal band; the neck all round upper back and entire lower parts pure white; crown, occiput and a broad occipital crest which entirely covers the nape velvet black. The rest of the upper parts very dark grey, darker and duskier on the quills and on the lateral tail feathers towards their tips. These laterals are white on the inner webs towards their bases, and the exterior of all have the whole outer web much paler; in the male nearly pure white, but the exterior web of the next preceding is the darkest in the tail.—A. O. H.]

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* Since writing the above, through the kindness of G. Nash, Esq., Telegraph Department, who sent a canoe from Ormarra to Astola about the 19th June, I have received another beautiful series of eggs of *Sterna bergii*. They were nearly all slightly incubated, but not too far advanced to blow. The man who went to Astola for these eggs reported that only one species (*Sterna bergii*) was laying on the island, and that the eggs were laid in groups, two or three in each nest, but never more. When I visited the island I only found one egg in each nest; but then they were all quite fresh, so that the birds might have laid more if the nests had not been robbed.

Strange to say *Larus hemprichii* had not commenced laying, although the men reported that they were just as numerous as when I visited the island the month previous.

E. A. B.

990.—**Sterna media**, *Horsf.* (= S. affinis, *Rupp.* et S. bengalensis, *Cuv.*)

Captain Butler has also sent a lovely specimen of this species killed on the Mekran Coast, on the 20th May.

It is a *male* in full breeding plumage; the whole forehead, crown, occiput and crest velvet black; legs and feet black; soles pale yellow; irides dark brown; bill orange.

It measured—

	L.	Ex.	T	W.	Ts.	B. at front.	B. from g.
♂	16·5	35·75	6·0	12·25	1·1	2·19	2·93

The upper parts are a delicate pale satin grey (excluding of course the head and white neck); the outer web of the outer tail feather nearly white; the quills thickly silvered; the outer web of the 1st primary deep dusky grey towards the base; the inner half of the inner web the same colour. More and more of the same dark color on the inner webs of the succeeding primaries, the silvering encroaching on the dark colour as it increases in extent.

We have all hitherto failed to secure the eggs of this species, though I have had reason to believe that it breeds with *anosthætus* in July or August.—A. O. H.]

992.—**Sterna anosthætus**, *Scop.*

We did not observe this Tern until we got about opposite to Gwadar, after which it became common all along the Gulf of Oman, and in the Persian Gulf it was excessively abundant as far as Henjam, the furthest point we visited.

It constantly came* on board at night to roost, settling up in the rigging and on the life boats. In fact all of the specimens I preserved were captured on board at roost by the sailors. No other species ever settled on board during the trip. Measurements as follows:—

Sex.	L.	W.	T.	B. at f.	B. fr.g.	Exp.	
♂	14·	9·87	5·75	1·63	2·06	30·	Immature plumage.
♂	16½.	10.12	7·25	1·81	2·25	31·5	

Legs, feet, and bill, black; irides, blackish brown.

993.—**Anous stolidus**, *Lin.*

I observed a few Noddies along the coast between Jashk and Pusni, about half a dozen in all. Most of them were skimming over the water like Shearwaters at a considerable distance from land (2 or 3 miles); but the one I secured, a remarkably fine specimen, which I have already mentioned

* This is always the Tern that most commonly comes on board ships in Indian waters. I have had at least three times as many of this species sent me, caught on board, as of all other species of Terns put together.—A.O.H.

under the head of *Sterna albigena*, was fishing, in co[illegible] with a large mixed flock of *S. albigena* and *S. minuta*, (?) [illegible] the Bay at Jashk, and kept dropping down and settling Gull-like on the water. I believe I have correctly identified the species,* as it does not seem to me to agree so well with the descriptions of either of the other species *A. senex* and *A. leucocapillus*, S. F., Vol IV., p. 480.

Measurements as follows :—

Sex.	L.	W.	T.	B. at f.	B. fr. g.	Exp.
♂	15·75	9·62	6·25	1·69	2·31	31

Legs and feet dusky vinous brown; irides and bill blackish; gape, pale yellow.

996.—Phaeton indicus, *Hume.*

We saw about a dozen tropic birds in all during our trip, but only noticed the species off the Mekran Coast between Ormarra and Gwadar. All of the birds were in precisely the same plumage, and corresponded exactly with the birds obtained by Mr. Hume (*vide* S. F., Vol. I., p. 287). Surely this [illegible] be a distinct species as suggested by Mr. Hume, S. F., [illegible] 4, p. 482, and not the young of true *æthereus*, otherwise h[illegible] is it we never come across birds in the adult plumage, or wi[illegible] long tails.

From what I can gather from Captain Bishop, the birds remain here all the year round; and if, as Mr. Hume imagines, they breed in the neighbourhood, surely in the breeding season, if at no other time, they should appear in full plumage and with long tails; but Captain Bishop, who has been constantly up and down the Mekran Coast at all seasons for years, and has observed the bird closely, informs me that he has never seen it in any other plumage. Mr. Hume procured all his specimens in January, February and March, and I procured mine (three in beautiful plumage) at the end of May, and as they are all apparently exactly alike, I think Mr. Hume is justified in provisionally separating the species as *P. indicus*. The birds were not at all wild crossing the bows of the ship constantly within 10 or 15 yards. Two of the birds I obtained measured as follows :—

Sex.	L. Including central tail feathers †	W.	T.‡ Including central tail feathers.	Bf.	Bg.	Exp.
♂	20·5	11·25	8·25	2·38	3·25	38.
♀	20·75	11·37	8·25	2·31	3·25	37·5

* Certainly; the specimen is *stolidus*.—A.O.H.

† The lengths given by Mr. Hume, S. F., IV., 482, are only to end of ordinary tail feathers.—E.A.B.

‡ One not measured in the flesh had the tail 9 inches.—A.O.H.

Legs, greyish white, ⅓ths of the foot black; bill, orange red, [illegible]d dusky on both mandibles; irides, blackish brown.

In all of my specimens the feathers of the flanks and sides of the abdomen in the region of the thigh coverts are finely powdered with minute dusky specks.

[In June this year Davison came across four *Phaetons* in the Bay of Bengal in Lat. 9° N.

All were precisely similar to Captain Butler's and my numerous specimens; none had the tails more than 8 to 9 inches total length. He did not see a single bird with any longer tail than these.

There seems to me scarcely a doubt left that our Indian species, that I have called *indicus*, is distinct from *ætherius*.—A. O. H.]

999 *bis*.—Sula cyanops, *Sund.*

We saw a few White Boobies along the Mekran Coast, and I was fortunate enough to secure two good specimens. At first I took them to be *piscatrix*, as they agree well with Jerdon's [illegible]ription, excepting in the bill and feet, which were not *red* [illegible] *lavender*; but after reading over Mr. Hume's remarks, [illegible]F., Vol. IV, p. 483, I have no doubt that they belong to the [illegible]resent species, having the tails, quills, and greater wing coverts black. Dr. Jerdon's description of *piscatrix* is incorrect, and consequently apt to mislead people* He says: "Descr; white, the rump and upper tail coverts slightly mottled with dusky, and the wings and tail dusky black." This description clearly points to *S. cyanops*, as Mr. Hume, in a letter now before me, in treating of *piscatrix*, remarks: "Only quills and greater coverts greyish black, rest of plumage white." Then again Dr. Jerdon says: "Legs and feet *red*." This *is* the case in *piscatrix*; but, as he has described *cyanops*, he should have said "legs and feet lavender blue." However, as so little appears to have been recorded about these birds, I trust that Mr. Hume will kindly furnish accurate descriptions of the White Boobies "pro bono publico." My specimens measured as follows:—

Sex.	L.	W.	T.	B. at f.	B. fr. g.	Exp.
♂	33·	16·5	7·5	4·	4·12	65
♀	32·	16·5	7·25	4·06	5·	60

Legs and feet lavender blue; bill pale bluish horn; gular skin slate; irides pale green.

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* See my "Remarks on the genus Sula." These birds of Captain Butler's may certainly at present be accepted as *cyanops*; even if not true *cyanops*, they belong to one of the species now generally included under this name.—A. O. H.

The crops of both of the birds I dissected contained flying-fish, which seem to be the favorite food of *Phaeton indicus* [illegible] in whose company they are often met with.

It still remains for me to draw attention to a bird that puzzles me altogether. It is a sea bird, and occurs along the Mekran Coast, but what it can be I have not a notion. Captain Bishop knows it well, and says that the sailors call it the Whale bird, as it usually arrives about the time that the large shoals of whales appear.

It is about the size, or perhaps rather larger, than *Sterna minuta*, and Captain Bishop says: "Skims over the water something like *Puffinus persicus*." What can it be *? We did not see the bird during our trip.—E. A. B.

Remarks on the genus Sula.

My friend, Captain Butler, in his charming "Summer Cruise in the Gulf of Oman" (p. 303), finds fault with Dr. Jerdon's description of *Sula piscatrix*, and suggests that I should furnish accurate descriptions of the white Boobies (!)

I am afraid that in his condemnation of Dr. Jerdon's description, Captain Butler is scarcely just. It is quite true that in one stage *of plumage* (that of the old adult as is supposed), *piscatrix* has *only* the quills and larger coverts black (or rather blackish brown powdered grey), but this is a stage presumably rarely seen, and ignored by several of the authors who describe the species,† and (always supposing two species have not been confounded) at a somewhat earlier stage (and this seems to be the stage in which the majority of adults of this species have been procured), the *tail as well as* the quills are blackish brown, so that we can hardly cavil at Dr. Jerdon's description in regard to this matter.

As to the colours of the soft parts a very slight study of the literature of this genus would convince any one that, if there be any one point in ornithology, in regard to which no two authorities agree, it is in regard to the colouring of these parts in many of the Boobies.

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* The Whale bird of sailors is a *Prion*; there are several species of the *turtur* type, to all of which this trivial name is applied. I saw several of these birds between Preparis and the Cocos, S. F. II, 317. To what species the Mekran Coast birds may belong it is impossible to say without examining specimens, and even *with* specimens, so involved is the synonymy, it might prove no easy task to decide what name the species ought to bear.—A. O. H.

† Peale named the old adult (unless indeed two species are here confounded) *rubripeda*, saying (Zool. U. S. Expl. Exp. Birds, 274, 1st Ed. 1848)—"tail cuneiform, *white* (which distinguishes it from *S. piscatrix* at first sight, *its* tail being *black*.)"

The fact is that this genus has never I believe been properly worked out, and until some one is in a position to do this, we shall always remain in doubt as to many essential points, such as the true number of species, the changes of plumage, the variations in the colours of the soft parts and the like.

Unfortunately, what is requisite for a proper investigation of this small and well-marked genus, is a really large series of specimens from all parts of the world correctly sexed by dissection, with dates, localities, and colours accurately recorded.

Such a series exists in no one locality ; the great majority of the specimens in museums (and even these are not numerous) have not been reliably sexed, and in not a few cases their origin even is doubtful.

The only authority to whose works I have access, who has of late years dealt with this genus as a whole, is Professor Schlegel in the Mus. Pays. Bas. *Pelecani*, p. 37, *et seq*, July 1863.

He admits

1. Sula bassana, *Lin.*
2. Sula serrator, *Banks.*
3. Sula capensis, *Licht.*
4. Sula cyanops, *Sundev.*
5. Sula piscatrix, *Lin.*
6. Sula australis, *Steph.* (*fiber* apud *Schl. et auct.* nec *Lin.*)

But besides these, other authorities keep other species distinct, *viz.*—

7. 2A. Sula lefevrii, *Baldamus.*
8. 4A. Sula dactylatra, *Less.*
9. 5A. Sula variegata, *Tschudi.*
10. 6A. Sula parva, *Gm.*

and a careful examination of what has been put on record in regard to this genus, leads me to believe that it will eventually prove to contain even more species.

When high authorities, like Finsch and Hartlaub on the one hand (Orn. Polynes. 260), and Salvadori (Ucc. di. Borneo, 369) on the other, with the museums and libraries of Europe open to them, contradict each other point blank as to whether a supposed species (*variegata*) is identical with another (*piscatrix*), or *absolutely* distinct, and when almost every one who has written any thing original about Boobies (and not merely copied existing records), traverses or contradicts something that some one else has said, it would be absurd for me, in a distant colony, with a meagre library, and no specimens of this particular group, to speak of, in my museum, to pretend to be able to put matters on a more satisfactory basis.

All I can do is, following what others have written, to give an extemely brief sketch of the several species of the genus

dealing somewhat more in detail with those three species only with which we are more especially concerned in India.

The Boobies naturally divide into two sub-groups.*

THE FIRST has only the lores, orbital region, base of aural region, base of lower mandible, and a stripe down the middle of the throat naked.

This includes *bassana*, *serrator* (*lefevrii* if distinct) and *capensis*.

Of this sub-group we may dispose at once, as it in no way concerns us :—

1.—Sula bassana, *Lin.*

This is the largest of the whole group, named from the Bass Rocks, a celebrated breeding place of this, the Gannet or Solaud Goose.

The entire plumage of the adult is white, except the *primaries and winglet* which are dull *black*. Wing 18·20.

Habitat, Europe, W. Coast of Africa, North America, &c.

2.—Sula serrator, *Banks.*

Was this name ever published ; if so, where? This is *australis*, Gould, P. Z. S. 1840, 177, but this name can stand as Stephens, Gen. Zool. XIII, 104, 1826, describe the Linnæan *sula* under this name. This species is said to be rather smaller than *bassana* (but I have a specimen with wing over 19), and has the *whole of the quills* and the *four central tail feathers blackish brown.*

Habitat, New Zealand, Australia, &c.

2A.—Sula lefevrii, *Baldamus.*

Bonaparte and others claim this as distinct; it is the *melanura* of many writers, but not of Temminck ; it is said to differ in having the *whole of the quills and entire tail black*, and to have occurred in Europe.

3.—Sula capensis, *Licht.*

This is the true *melanura* of Tem. and is a good deal smaller than the preceding; wing 16·25 to 18·5 ; it has *all the quills,*

* The genus has by some been sub-divided into three genera—*Dysporus*, Illiger; *Sula*, Vieill; and *Piscatrix*, Reich. I can see no necessity as yet for sub-dividing the genus, but I have only specimens (and only one or two of each) of *bassana*, *serrator*, *cyanops*, *piscatrix*, and *australis*, and for all I know it *may* be right to sub-divide the genus, but what I fail to understand is how Bonaparte and others apply Illiger's *Dysporus* to the Linnæan *sula*, reserving the generic name *Sula* for *bassana* and other species. The genus *Sula* of Brisson clearly has for its type the Linnæan *Sula*, the *Sula* of Vieillot seems to be founded on Brisson's *fusca*, which whatever it may be (and of that hereafter) is certainly neither *bassana* nor of the *bassana* type. On the other, Illig type *seems* to have been *bassana*.

the whole tail, and the *greater wing coverts blackish brown*. It differs moreover from all the preceding in having the naked throat stripe prolonged down much further towards the breast.

Habitat, Cape of Good Hope, &c.

The Second sub-group has the lores, face to angle of mouth, chin, and a portion of the throat defined by a curved line (convexity downwards) from the gape on either side, bare.

This includes *cyanops* (and if distinct *dactylatra*), *piscatrix* (and if distinct *variegata*), *australis* (and if distinct *parva*).

With the three non-doubtful species we are more especially concerned as all occur within our limits.

4.—Sula cyanops, *Sundev.* Physiogr. Salksk. Tidskrift. 218. *n.* 1837.

personata, *Gould*, P. Z. S. 1846, 21.

melanops, *Hartl. and Heugl.* Ibis, 1859, 351, pl. X. f. 2.

These three names * seem to be at present almost universally accepted as synonymous, and most modern writers include *dactylactra*, Lesson, of which more hereafter.

But though accepted as synonymous, it must not be supposed that the dimensions or descriptions given of this supposed single species by different writers agree over well. On the contrary they differ most materially, as will appear from a few quotations that I shall make.

Von Heuglin (*cyanops*), Orn. Nord. Ost. Afr. 1481—1873 (who includes *personata*, Gould; *melanops*. Hartl., and with a? *dactylatra*, Less.; and *cyanops* of Shelley):—

"White, scarcely tinged with fulvous; quills, greater wing coverts, tertiaries, and tail feathers smoky black; quills within whitish towards their bases; bill olivaceous yellow; bare skin of face and chin deep black; irides yellow; feet dusky; webs almost black; claws blackish horny, livid at the points.

"Length, 30·7—31·8; bill at front, 4·12; from gape, 4·92; wing, 17·8—18·1; tail, 7·67—8·77; tarsus 2·1—2·2."

Gould (*personata*), P. Z. S. 1846, 21; B. of Austr. VII. pl. 77. (*cyanops*); Handb. B. of Austr. II, 506:—

"The whole plumage of both sexes is pure white, with the exception of the greater wing coverts, primaries, secondaries, and tertiaries, the tips of the two central and the whole of the lateral tail feathers, which are of a rich chocolate brown; irides yellow; naked skin of face and chin in specimen dull bluish black; legs greenish blue.

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* Other supposed synonymes are, piscator, *Peale*. U. S. Expl. Exp. Birds, 273,1848 nec *Lin.*; bassana, *Thomp.* Allen. Exp. Niger, II, 175. nec. *Lin.*

" Total length, 29 inches ; bill, 5 ; wing, 16·5 ; tail, 8·5 ; tarsi, 2·25."

Bonaparte (*cyanops*), Consp. II, 166, 1850 (including *personata*, Gould, but not *dactylatra*) :—

" Smaller; white; quills and tail blackish chocolate ; 16 *tail feathers*; face blackish blue ; bill huge, yellow ; feet plumbeous."

The original description of *melanops* from the Red Sea by Hartlaub and Heuglin himself) does not exactly correspond with Heuglin's later one first quoted, of *cyanops* from the same locality, though he accepts the identity of the species. It occurs, *Ibis*, 1859, ·351 :—

" White ; slightly yellowish ; quills, scapulars, and the outer wing coverts and tail feathers black, all at their bases whitish or pure white; the shafts white below ; the bend of the wing white ; bill greenish yellow, black basally, bare space round the eyes, and the roundly truncated bare throat patch black ; irides reddish yellow ; feet bluish plumbeous ; the webs duskier ; nails horny black, whitish at the tips. L., 29·6—30·7 ; B. fr. g., 4·92 ; at fr., 4·12 ; W., 17·52—18·33 ; tail, 8·77 ; tarsus, 2·2 ; mid toe and claw, 4·11—4·3."

Schlegel, Mus. Pays. Bas. *Pelecani*, 39, July 1863 (includes *dactylatra* with a query) :—

" Plumage absolutely like that of *S. capensis* (*i.e.*, white, the t feathers, all the quills and greater wing coverts black) ; feet greenish ; bill pale yellow ; naked skin of head pale black, verging on violet or blue.

" Wing 15·7—15·43 ; tail, 7·12—8·03 ; tarsus, 1·85—1·94 ; 4·—4·2"

Captain Shelley, B. of Egypt, 294, gives a description of a Gannet which he identifies as *cyanops* :—

" Naked skin on the face and pouch slate colour ; quills, greater wing coverts, and tail dark brown ; beak yellow ; legs slatey grey ; irides yellow."

Finsch and Hartlaub (*cyanops*). Orn. Central Polynesiens, 252, in which they include *personata* and *melanops*, and with a (?) *dactylactra* :—

" White ; greater wing coverts, all the quills, the lateral tail feathers, and the tips of the central ones intense dusky (*fuscis*) ; bill pale greenish yellow ; naked portions of face and chin dull bluish; feet greenish ; irides yellow.

" L. 31·8 ; B., 4·2 ; W., 15·35—17·52 ; T. 6·57—7·67 ; tarsus, 1·82—1·93.

" *Old.*—Uniform white, somewhat yellowish ; the quills of the first and second order ; their coverts and scapulars, together with the tail feathers brownish black ; the quills white at their bases on the inner webs.

"Bill horny greenish grey, the point more yellowish horny, the base of the bill and the naked skin of the head blackish.

"*Younger bird* (McKean's Isld.)—Almost like the above, but on the back a few brown feathers; the rump is still almost uniform brown; the upper tail coverts are white, with brown tips.

"*Younger bird* (? Texas).—The entire upper surface nearly uniform brown, only on the scapulars, mantle, and rump appear many white feathers, most of which however still show a washed-out brown spot in the middle. Many of the upper wing coverts exhibit white tips; so also the brown feathers of the foreneck. The rest of the lower parts, together with the lower wing coverts, pure white.

"Bill horny brown, the edges and tip pale horny greenish; naked portion of face and throat brownish black; feet dirty horny brown.

"This specimen agrees almost entirely with the young specimen of *S. melanops*, figured, *Ibis*, 1859, pl. X, f. 2.

"*Young*.—Almost uniform grey brown (Sundev).

Nestlings clad in white down.

Sexes do not differ, only the young and females are smaller.

Young.—Female; face and bill for the basal half blue; the terminal portion olive-coloured; feet olive-coloured; the webs dark; iris deep yellow.

"*Young*.—Bill almost to the base, olive-coloured (Sundeval, from fresh specimens).

"*Old*.—Bill and naked portion of head bluish green; legs dirty green; iris greenish yellow (Gräffe, from fresh specimens.)"

They add dimensions of numerous specimens, some of which I have already given :—

"L.	W.	T.	B. at fr.	B. fr. gape	Trs.	M. T.	
31·8—32·86	18	6·02	4·3	5·3	2·53	3·12	Young (?) Texas.
	16·7	5·5	3·83	4·58	2·03	2·94	Young "
	17 75	6·45	4·02	...	2·1	2·94	(*cyanops*, Sundev.)
	19·18	10·13	4·48	5 68	2·42	3·3	(*cyanops*. Pelz.)
	15·7—17·43	7·12—8·03	4·42	...	1·85—1·94	...	Schlegel.
	17.52—18·33	8·77	4·12	4·93	2·2	...	(*melanops*. Hartl.)
To which we may add :—							
30·7—31·8	17·8—18·1	7·67—8·77	4·12	4·93	2·1-2·2	...	v. Heuglin.
29	16·5	8·5	...	5*	2·25	...	Gould.
32	16·5	7·25—7·5	4·0—4·06	4·12-5	2·15—2·25	2·95	Butler."

If therefore we believe that these measurements all refer to the same species, we must admit that the wing varies from 15·7 to 19·18; the tail from 5·5 to 10·13; the bill at front from 3·83 to 4·48; and from gape from 4·58 to 5·3. Similarly, the tarsus varies from 1·85 to 2·53, and the mid toe in the few measure-

* It is impossible to say whether this dimension should be placed in this or the next preceding column. Mr. Gould merely says "Bill, 5."

ments we have from 2·94 to 3·3, and Hartlaub gives the mid toe and *claw* at 4·11 to 4·2.

If we contrast the recorded colours of the soft parts, we shall find even more striking differences :—

	Bill.	*Bare Skin of Face and Chin.*	*Feet.*	*Irides.*
V. Heuglin ...	Olivaceous yellow.	Deep black ...	Dusky, webs almost black.	Yellow.
Gould ...	.....	Bluish black ...	Greenish blue ...	Yellow.
Bonapte. ...	Yellow ...	Blackish blue ...	Plumbeous.	
Hartl. and Heuglin.	Greenish yellow	Black ...	Bluish plumbeous, webs dusker.	Reddish yellow.
Schlegel ...	Pale yellow ...	Pale black, verging on violet or blue.	Greenish.	
Shelley ...	Yellow ...	Slate colour ...	Slaty grey ...	Yellow.
Finsch and Hart.	Pale greenish yellow.	Dull bluish ...	Greenish ...	Yellow.
Sundev. (young female).	Basal half blue, terminal portion olive.	Blue ...	Olive, webs dark	Deep, (?) bright, yellow.
" ...	Horny greenish grey.	Blackish.		
Gräffe ...	Bluish green ...	Bluish green ...	Dirty green ...	Greenish yellow.
Butler ...	Pale bluish horny.	Slate colour ...	Lavender blue	Pale green.

It has been suggested that the colouration may vary with sex as well as age, but in the present case, Captain Butler's specimens, male and female (both apparently in exactly the same stage of plumage,) differed in no single respect in the colours of the soft parts; it has further been said that the females are smaller, but this idea also receives no confirmation from Captain Butler's specimens.

It will have been noticed that, while Gould and Finsch give only the *tips* of central tail feathers as dark, others give the *whole* of these feathers thus:

Taking the *record*, judicially, I think it very probable that, instead of one species, there will prove to be three. The true *cyanops* from the Atlantic, *melanops* from the Red Sea and the north-east coast of Africa, and *personata* from North Australia, New Guinea, and Central Polynesia. It seems probable that the specimens from the Keeling, or Cocos Islands, and Straits of Sunda are identical with these latter.

Even if the evidence were not in the highest degree discrepant, it should not be overlooked that probabilities are somewhat in favour of the distinctness of species inhabiting as permanent residents, and breeding in these three very different localities, the Atlantic, the Red Sea, the Straits of Torres and Central Polynesia, and not occurring so far as we yet know

throughout enormous intervening tracts, and I hope some one in Europe will critically examine all the available specimens and see whether this is or is not the case.

In the meantime Captain Butler's birds and Captain Shelley's are I think identical, but whether they are really *melanops* of *Hartl.* is by no means equally clear to me, though *à priori* I should think they must be.

The colours of the soft parts and dimensions of Captain Butler's specimens have been above noted.

Both are in precisely the same plumage, just passing apparently into the so-called adult as distinguished from the old, and are, as I take it, about two years old.

The moult of the wings has been completed, that of the tail is in progress, that is to say, amongst full-sized, more or less abraded, dull brown feathers are mingled, short, growing, satiny, deep chocolate brown ones.

In one bird's tail, old and new, I can only discern 12 feathers; in the other, including four very short ones, there are eight on one side, and six on the other, so that there really probably *are* 16 ...ers in the perfect tail.

...he whole of the quills, longest scapulars, winglet, greater ... median coverts, and tail, except old feathers, are a rich deep ...ber brown inclining to chocolate.

The whole of the rest of the bird may be said to be white, but there is a faint creamy tinge in most of the white feathers of the upper surface, a good many brown feathers are mingled in the median rows of the lesser wing and upper tail-coverts, and some of the median scapulars are brown or brownish grey towards their tips. There are a few brown feathers on the flanks—and a dull pale ferruginous stain (whether natural, or the result of grease acquired in skinning I cannot say,) over the central portion of the abdomen.

The chin, throat, breast, sides, axillaries, wing lining are pure white, except two or three brown feathers amongst the latter just below the carpal joint.

The quills are grey or whitish towards their bases on their inner webs.

In the most perfect tail the central feathers exceed the exterior lateral ones by 2·65.

The distance measured straight from the tip of the upper mandible to the commencement of the feathers on the throat is exactly 5 inches in both specimens.

4A.—Sula dactylactra, *Less.* Voy. Coq. Zool. I., pt. 2, 494, 1826, *sine descr.*

Tr. d'Orn. 601, 831 *descr. orig.*

nigrodactyla, *Less.* Bp. Consp. II. 165, 1850.

This species, if really distinct, concerns us little. It was procured at Ascension Island, and is *not* likely, even if distinct, to occur within our limits.

Lesson's original description is as follows :—

"Plumage pure white ; wings and tail black ; tarsi yellow ; the base of bill encircled by a naked skin, which extends on to the throat in the shape of an half circle."

Of course, this may be *any* thing ; but as according to Bonaparte the original specimens existed in the Paris museum in 1850, it is difficult to understand how the matter of their identity or distinctness still remains doubtful. Bonaparte, with specimens of both this and *cyanops* (or at any of *personata*) before him, said they were distinct.

No writer who unites this species with *cyanops*, with a? seems to have examined the types.

If really identical with *cyanops*, Lesson's name has of course priority.

5.—Sula piscatrix, *Lin.* S. N. I. 217, 1766.

candida, *Briss.* Orn. VI, 501, 1760.
erythrorhyncha, *Less.* Tr. d'Orn. 601, 1831.
rubripes, *Gould*, P. Z. S. 1837, 156.
rubripeda, *Peale*, U. S. Expl. Expn. Birds, 274, pl. 83, 1st Ed., 1848.

To these synonymes Tschudi's *variegata*, of which more hereafter is commonly added.

Brisson's original description is full and excellent :—"It is a little larger than the first species of this genus (*sula* of *Lin*). Length from tip of bill to tip of tail 33·96,* and to tip of claws, 27·8 ; bill from gape, 5·5 ; tail, 10·95 ; foot (tarsus ?), 1·93 ; mid toe and claw, 3·58 ; outer, 2·11 ; inner, 2·2 ; hind toe, 1·3 ; mid toe claw serrated interiorily ; expanse, 67·87 inches. The wings when closed reach to about three-fourths of the length of the tail.

"The head, neck, body, scapulars, upper and under wing, and tail coverts are white, excepting the upper greater wing coverts, most distant from the body, which are brown. The great feathers of the wing are of this latter colour, the medium ones white. The tail of 14 feathers similarly white. The central ones longest, the laterals diminishing as they recede from the centre, so that the outermost on each side is 6·12 shorter than the central ones. The space on each side between the eye and bill is naked and red. The bill, the legs, and toes and their

* Of course, in this and all other cases I have, in translating, converted French inches, millimetres, &c., into English inches and decimals.

webs are also red, and the claws are reddish. Found on the coasts of Africa and America."

I have had toexamine nearly 50 descriptions of Boobies during the last few days, written by naturalists, "ancient and modern," but I have met with none more satisfactory on the whole than this prælinnean one.

This is a fair sample of Brisson's descriptions, and this is the man whom English naturalists have seen fit to set aside entirely, except as regards such genera as Linnæus neglected to adopt from him, because his nomenclature was not strictly *binomial!* Mr. Strickland and the others, associated with him, went, it seems to me quite beyond what was necessary in the matter of *binomialism*, when they on this account virtually ostracised Brisson (the great majority of whose names are truly binomial) and fixed upon the XIIth edition of Linnæus' Syst. Nat. as the starting point of all specific nomenclature.

As an ornithologist, in my humble opinion, Brisson ranks far above Linnæus, who, great and broad-minded man as he was, had not even a sufficient insight into our particular branch of Natural History to avail himself of much that Brisson had done ready to his hand.

English ornithologists of a particular school are constantly carping at American and other authors, for ignoring the British Association Rules in regard to the point from which specific nomenclature is to date, but those rules are, it seems to me, inherently wrong, and in so far as they rejected Brisson and adopted Linnæus, grasp only the shadow and let go the substance, and it is only natural that the mind of every just man, who takes up and studies these fathers of our science, should revolt against a rule that involves such injustice to one of the greatest and most accurate of the founders of ornithology.

The time has not perhaps yet come for this, but most assuredly these rules will have to be revised, and sooner or later our more liberal successors will insist on doing that justice to Brisson and others that English ornithologists now deny them.

Let us now turn to the Linnæus' description :—"Tail, cuneiform; bill serrated; body white; all the quills and face black."

"The upper mandible towards the base, as it were, denticulated on either side. Nostrils closed, face and orbital depression in my dry specimens black, whether in life they are red, as Brisson says, I do not know."

But for his quotation of Brisson, with a reference to the passage already quoted, it would be impossible to say to what species Linnæus referred, and I think it extremely likely that he really had another species before him and erroneously referred to Brisson's description of *candidus*. However, this reference,

erroneous or not, is all we have to fix "piscatrix,"* and by it that name is attached to Brisson's *candida* in regard to which no doubt can exist.

Lesson's description of his *erythrorhyncha*, which he himself identifies with *piscatrix*, is as follows:—

"Bill rosy, with a black tip; a little bare space round the eyes; the plumage white, with yellowish reflexions; the quills black; the tail whitish or greyish; the tarsi orange. The female is brownish grey, with a reddish tinge. Habitat?"

Gould thus described his *rubripes*, which he considered somewhat immature:—

"Head, breast, throat, abdomen, and vent dingy white; back and tail pinkish; wings pale pinky, mottled with dusky grey; primaries and secondaries blackish dusky; bill yellowish fleshy, with the tip black; feet bright reddish orange.

"Length, 23; bill, 4; wing, 14; tail, 7; tarsi, 1·37.

"From New South Wales."

Then we have Peale's "*rubripeda*," a name that, if intended to be original, is strangely near Gould's. Peale says:—

"Plumage of both sexes pure white, except the primaries, secondaries, and first row of greater wing coverts, which are dark brown, with a hoary surface; tail cuneiform, white (which distinguishes it from *S. piscator*, at first sight, *its* tail being black); bill deeply serrated of a pale blue colour, margined at the base by a bright red and wrinkled skin; cheeks blue; eyelids green; irides brown; gular pouch intense black; feet bright vermilion red; middle toe nail much flattened, curved laterally and deeply pectinated on the inner edge.

"Length, 28·5; expanse, 59; bill at front, 3·2; from gape, 4·1; tarsus, 1·4; mid toe and claw, 3; nail, 0·7; tail, 8·5; outer feather, 4·3.

"The young when first hatched are covered with a very white down; their first plumage is entirely brown, clouded with hoary, but the colour soon becomes lighter about the head, neck, breast, and tail. The neck and tail next become white, and finally the whole plumage, except the greater feathers of the wings."

So much for the original descriptions supporting the various names now universally accepted as synonymous.

Bonaparte diagnoses the species, Consp. II, 166, thus:—

"Smaller; milky white; quills and *tail* feathers blackish, the shafts white; naked throat intense black; feet red. Adult bill greenish, red after death. Younger birds have the throat fleshy, and the bill reddish; the young has the bill red."

* This name was given by Linnæus because, as he says, he thought it probable (I do not know *why*) that this was the species that the Chinese used for fishing after placing a brazen ring round the bird's neck. The bird really so used is of course a Cormorant.

Schlegel, Mus. Pays-Bas, *Pelecani*, p. 40, remarks that this species is distinguished "by its small size and short points to the wings. Wing, 14·5—15·2; point of the wing, 2·2—3·2; tail, 7·7—9·5; tarsus, 1·1—1·19; mid toe, 2·2—2·29; bill, 3·0—3·3; height of bill, 1·1—1·19.

"Perfect plumage white, with the exception of all the quills and the great wing coverts, which are greyish black; bill in the live bird of a light blue black; naked skin of the head flesh-coloured; feet red; immature plumage brown; bill brownish.

"Observed in the Indian Archipelago as far as the Straits of Torres; appears to stray into the Atlantic Ocean."

Gould tells us (Birds of Austr. VII. pl. 79. Handb. B. of A, 510):—"Mr. M'Gillivrai observed that the colouring of the bill and soft parts varies with the age of the individual; in the first stage the bill is of a delicate bluish pink, the pink tint predominating at the base of upper mandible, the bare patch about the eye of a dull leaden hue, and the pouch flesh-coloured, in the second the colouring of these parts is similar, but somewhat brighter, and ultimately the irides become grey, and the legs and [illegible] vermilion.

"The adults have the entire plumage buffy white, with the exception of the wings and *tail*, the former of which are blackish brown, washed with grey, and the latter pale greyish brown, passing into grey, with white shafts. Lastly, Finsch and Hartlaub (Orn. Central Polynes. 256) thus define and describe the species:—

"Ad. white; quills and *tail* feathers blackish dusky; throat naked with the face and bill pale blue, the latter reddish at the base; feet coral red; irides brown; eyelids greenish.

Younger.—Back wings and tail dusky ash; wing coverts mottled with white; bill dusky at the tip.

Young.—Pale dusky ashy, mottled paler below; belly whitish; face and feet dingy reddish.

"Length, 32·38; bill, 3·5; wing, 16·44; tail, 8·77; mid toe, 2·74.

"From the Indian Sea, Bremen Museum.

"*Old*.—Entire plumage white, only the quills, their coverts, and the bend of the wing dark brown, somewhat tinged with grey. The quills white at their bases on the inner webs. The white being more extended on the secondaries, the latest of which are entirely white. The shafts of the quills clear brown, the underside white. The white feathers of the hind neck and back, tinged towards their tips, with pale rusty yellow, which is still more conspicuous on the head.

"Bill dark blackish red, with pale horny greenish margins, tip and culmen; the naked head space dirty reddish brown; the throat browner; feet dirty deep red; nails whitish.

"A somewhat less advanced bird has the tail feathers still dark brown, like the quills, with white shafts.

"A younger bird (Bremen Museum) has not only the quills and tail, but also the wing coverts, scapulars, back, mantle, and rump deep brown, as are also the under-wing coverts and tibial plumes. The rest of the plumage white, but the feathers of the occiput and back of neck conspicuously tipped with reddish yellow. The wing coverts and feathers of the mantle exhibit broader or narrower greyish white tippings, and look therefore chequered.

"Bill and naked head space dirty fleshy brown; the culmen deep brown, and the point black; feet dirty orange red."

If we now sum up the evidence, we shall find here also discrepancies. First as to dimensions :—

L.	Exp.	W.	T.	B. fr.	B. fr. g.	Ts.	M. T. & el.	Mid T.	
33·96	67·87	.....	10·95	...	5·5	1·93	3·58	...	Brisson (W. C. Africa.)
23	.....	14	7		4	1·37	...	...	Gould (N.S.W.)
28·5	59	.....	8·5	3·2	...	1·4	3·0	...	Peale (Pacific.)
.....	.....	14·5-15·2	7·7—9·5	3·0—3·3	...	1·1—1·19	...	2·2—2·9	Schlegel (Indian Archipelago.)
.....	.....	15·55	8·2	3·5	...	1·3	...	2·48	Schlegel (young Atlant.)
24·1—30·8		15·7	8·59	3·5	4·12	1·47	...	2·2	Finsch Hartl. (S. Seas).
32·88		16·44	8·77	3·5	...	...	...	2·74	"
.....		14·25	6·84	3·3	3·94	1·38	...	2·20	" (young.)

Then as to colours of soft parts :—

	Bill.	*Facial Skin*	*Pouch.*	*Legs & Feet.*	*Irides.*
Brisson	Red	Red	.....	Red.	
Linnæus	.....	Black.			
Lesson	Rosy, with black tip.				
Gould (immature).	Yellowish fleshy, tip black.	.....	.....	Bright reddish orange.	
Peale	Pale blue.	Bright red at base of bill, cheek blue.	Intense black	Vermilion.	
Bonap. *ad.*	Greenish	.....	Intense black	Red.	
" *jun.*	Reddish	.....	Fleshy		
" *juv.*	Red.				
Schlegel (Boie)	Light blue lilac.	Flesh color	Flesh color	Red.	
McGillivrai, *juv.*	Bluish pink	Leaden blue	Flesh color.		
" *ad.*				Vermilion.	Grey.
Finsch & H.	Pale blue, reddish at base.	Pale blue	Pale blue	Coral red	Brown.
Forster	.....	Dirty blue	.....	Pale blue.	
Philippi	Bright blue grey.	.....	.....	Bright blue grey.	Carnelian red
Gräffe (young)	Bluish green, blackish at tip.	Greenish blue	Greenish blue	Bluish green	Greenish yellow.

As to plumage it will be observed that Bonaparte, Gould, Finsch, and Hartlaub describe the adult as having a blackish brown or grey brown tail, though the latter authors describe what they apparently take to be an *old* bird with the tail white, but it seems clear that the bird begins by being brown everywhere, and if two species have not been confounded, (which is not impossible), gradually turns white *everywhere*, until only the primaries and their greater coverts are brown or dusky.

For my own part I have very little doubt that two species very similar, but one much larger than the other, are here confounded.

5A.—Sula. variegata,—Tschudi. Erichs. Arch. 1843, I. 390; Fauna, Peru, 55, 313; Denkschrift, der kais. Akad. d. Wissensch. Wien. II. 2; Peru-Reissescizz. I. 327.

Von Pelzeln. Reise Novara, Vög. 156.

? Brown and white Booby of *Latham*, Gen. Hist. X. 441.

? leucophæa, *Steph.* Gen. Zool XIII., 106, *ex Lath*:—

Tschudi thus describes his species, Cab. J. F. O. 1856, 188:—

"Head, neck, upper back, and the entire lower surface of the body dazzling white; the wing and pinion feathers blackish brown on the outer webs, but white on the basal halves of the inner webs; lower back, tail, and flanks are besprinkled white and black. In younger birds this besprinkling extends almost over the entire back, the sides, and a portion of the belly. The bill is horny brown; the feet black; and the irides deep brown. Guano Islands, Peru."

Von Pelzeln, *loc cit*, remarks that he has three specimens of this species, which agree well with each other, only that in one obviously a younger bird, the white borders of the feathers of the back and upper surface of the wings are very little developed; in fact only feebly indicated; while on the lower surface and entire under parts from the middle of the breast, the whole of the feathers are of a greyish brown colour, with more or less broad white borders, so that the greater part of the lower surface appears to be irregularly mottled. On the crown and hind neck the white colour is somewhat mixed with brown. The middle tail feathers in the old are entirely, in a younger specimen at their bases, and in another specimen on the inner webs only, greyish white. He gives the following dimensions of these three specimens:—

	W.	T.	B. fr. g.	B. at. fr.	Trs.	Mid Toe (without claw).
	16·35	8·77	4·92	3·92	1·83	2·56
	15·34	7·94 (imperf.)	4·92	3.92	1·83	2·56
juv.	15·05	6·85 (do.)	5·2	4·11	1·83	2·75

Finsch and Hartlaub say positively that Tschudi's description shows clearly that his bird is only the young of *piscatrix*, and that Von Pelzeln's recent endeavour to establish the distinctness of this species rests on equally untenable grounds.

To whom replies Salvadori that *variegata* of which he has seen many specimens is absolutely distinct from *piscatrix*.

In this conclusion, a careful comparison of measurements, descriptions, the black feet, and the fact that *myriads* of the bird described by Tschudi were seen, and none of *piscatrix* inclines me to concur.

6.—Sula australis, Steph. Gen. Zool. XIII,104, 1826.

sula, *Lin.* S. N. I. 218, 1766.
fiber, *Lin*, *apud* auct, nec. *Lin.*
? brasiliensis, *Spix.* Av. Bras. II. 83 to 107, 1825.
fulica, *Less.* Tr. d'Orn. 601, 1831.
plotus, *Forst.* Descr. An. 278, 1844
? flavirostris, *Gould*, *apud Licht. Forst. ib.*
sinicadvena, *Swinh.* Ibis, 1865, 109.

It is inconvenient that I can find no sufficient reason for sub-dividing this genus, as adopting as one must Brisson's genus *Sula*, I am unable to adopt Linnæus' specific name *sula*, which undoubtedly belongs to this species, whereas his other name *fiber*, which has of late always been assigned here, equally certainly does *not* belong here. Finsch and others have already pointed this out, but as they adopt Illiger's genus of *Dysporus* for this section, they are able to adopt the Linnæan specific name *sula*, founded on Brisson's uninomial *Sula*.

The next name in order of priority is Stephen's, if we except *braziliensis*, the application of which to this species, referring as it does to a quite young bird, is very doubtful.

I said that *fiber*, Lin. did not apply. This is founded on *Sula fusca* of Brisson. Brisson's description of his *Sula*, our present species is as usual full and excellent, as his always are when he described from a specimen.

"Length,* 31·78; bill from gape, 5·02; tail, 10·7; tarsus, 1·82; mid toe and claw, 3·3; * * * expanse, 65·7. * *

"The head, throat, neck, back rump, the scapulars, and upper tail coverts ashy brown; breast, belly, tibial plumes, lower tail coverts, and flanks white. * * * * * * * * * *

"The iris light grey; naked skin of head yellow; bill grey; feet pale yellow; nails grey."

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* Compare the dimensions recorded by myself from a fresh bird, (S. F., IV, 483.) L. 31·7; B. fr. g., 5·1; tail, 8·0 (I measure from *vent*, he to *root*). expanse, 62.

I have described the adult of this species fully (S. F. IV, 483), and only quote this much of Brisson's description to show that there is not a shadow of doubt as to what his *Sula* was, and that he described our present species accurately.

Now, besides this, *Sula* (uninomial, he gave no second names to the type of each genus), Brisson described another species *Sula fusca* also from a specimen, and in his usual careful way. He had both specimens before him at the same time, and the presumption therefore is that *fusca* is *not* the same species.

The description, however, clearly *proves* that it is not. He says:—

"Scarcely larger than a domestic duck.

"Length, 26·28; bill to gape, 4·03; tail, 9·87; tarsi, 1·19; mid toe and claw, 2·75; * * * * expanse, 56·96; folded wings extend to two-thirds of the tail" (in *sula* it is three-fourths).

"Head, throat, neck, breast, belly, sides, and thighs of a rather light ashy-brown; the back and scapulars a little darker; the longest of the latter being even ashy blackish.

"Rump and upper and lower tail coverts ashy white; underwing coverts ashy brown; lesser upper wing coverts and the larger ditto nearest the body of the same colour, but the larger ones farthest from the body are ashy blackish. The wing is composed of 37 feathers of this latter colour, of which, however, the interior webs towards their bases are lighter coloured. The tail consists of 14 feathers, the central pair ashy, the rest brownish ashy, especially on the outer web, and the exterior feather on each side greyish white at the tip. The central pair are longest, the laterals diminish successively, so that the external pair are 5·65 shorter than the central pair. The region on each side between the beak and eye is bare skin and red; the bill, tarsi, toes, and webs are also red; the nails are reddish. Found on the coasts of Africa and America."

Now whatever this may be, this is *certainly* not the present species, and this *fusca* is Linnæus' *fiber*, and hence this latter name must, as has already been urged by others, cease to be applied to the common Booby.

Finsch and Hartlaub think that *fiber* is a young of *cyanops*, but in my opinion there is *no question* looking to dimensions, number of tail feathers (*cyanops* has 16), &c.; that Brisson described a young specimen of *piscatrix*, or, if my surmise prove correct, of the smaller of the two species now confounded under the name *piscatrix*.

I have already described the adult of our present species from a fresh specimen (IV, 483), the young is an uniform rather dark brown, the head and neck rather paler, and according to Finsch (*op. cit.* 261) has the bill and naked throat patch violet black, and the feet orange brownish.

But a young female probably about a year old that we caught on boardship, between Malacca and Penang, Lat. 2° 25′ N., Long. 101° 40′ E. on the 8th of August, and of which the dimensions and colours were most carefully recorded at the time, and which I have inserted in the tables below, did not agree in these latter points.

Here also, as it seems to me, a much smaller species still to be noticed, has been confounded with the present species, and it is impossible for me to make out in all cases where colours of soft parts are referred to, whether these were taken from the specimens of the true *australis* (*sula*, Lin.), or from the smaller.

Finsch and Hartlaub quote the following :—

		Bill.	*Orbital Region.*	*Throat Pouch.*	*Tarsi and Feet.*	*Iris.*
Neuweid.	*ad.*	Pale greenish or reddish white, point and base very pale greenish yellow.	Sky blue.	Pale yellowish greyish white.	Pale greenish yellow.	Whitish silvery.
	y.	Base grey brown or greenish white.				
Burm.	*ad.*	Horny yellow, pale fleshy at base.	Pale fleshy.	Pale fleshy.	.....	Pearly white.
Cassin.	*ad.*	Light yellow, fleshy at base.	Yellow.	.....	Pale yellow.	White.
	y.	Dusky.	.....	.....	Dirty yellow.	.....
Forster.		Greenish yellow.	More of a sulphur yellow.	.....	Greenish yellow.	White.
Gundlach	*y.*	Bluish.	Greenish.	Greenish.	Pale orange brown.	
Dohrn.	*all.*	Dirty olive yellow.	Clear blue.	Dirty olive yellow.	Dirty olive yellow.	Dirty green.

To which I may add (*certainly* of the larger species.)

Hume.	*ad.* ♀	Creamy white with bluish tinge in veins.	Pale hoary greenish yellow.	Pale hoary greenish yellow.	Pale yellow, greenish on tarsi.	White.
Hume.	*juv.* ♀	Pale glaucous blue.	Pale glaucous blue, strongly tinged green.	Pale dirty bluish green.	Very pale, buffy yellow, tinged green on tarsi.	Pearly.
Heuglin.	*ad.*	Hoary greenish.	Yellowish.	Hoary greenish.	Pale yellowish green.	Pearly white.
	y.	Basal portions tinged violet.	Deep violet.	Deep violet.	Greenish blue to yellowish.	
Swinhoe.	*imm.*	Pale yellow.	Plumbeous.	Pale yellow deeper than bill.	Pale yellow, with a tinge of green.	Light pearly grey, blackening near pupil.

As to dimension of the *present* species, we may quote the following :—

		Length.	*Exp.*	*Wing.*	*Tail.*	*Culmen.*	*B. fr. g.*	*Tr.*	*Mid toe & cl.*	*Mid toe.*
Brisson		31·78	65·7	.....	10·7	.....	5·02	1·62	3·3	.....
Schlegel		.....	.....	15·5-16·7	9·2-10·1	3·85-4·1	.....	1·53-1·64	.....	2·2-2·65
Finsch		32·9	.....	16·96	8·21	4·02	4·93	1·83	.....	2·73
Heuglin		30·66	.....	15·55-16·7	8·77-9·88	3·84	.....	1·54-1·72	.....	.....
Swinhoe	♂	31·5	.....	16·0	9·0	4·5	5·4	1·9	3·6	.....
Hume	♀ *ad.*	31·7	62	16·1	8·0	4·1	5·1	2	.....	.....
	♀ *juv.*	29·12	57	16·25	7·2	.....	4·65	1·75	.....	.....

As to distribution I am unable to say more than that the larger species seems to inhabit the tropics of both hemispheres, wandering more or less into the temperate zones.

6A.—Sula parva, Gm. S. N. I. 579, 1788 } Ex. Buff.
leucogastra, *Bodd.* Tabl. Pl. en. 57, 1788 } P. E. 973.
fusca, *Vieill* apud *Pelzn.* Reise Novara. 156, nec *Vieill.*
sula et fiber, *Lin* apud *Auct.* nec *Lin.*

There is no detailed description of this species which has its origin in Buffon's, P. E. 973, and his brief accompanying remarks :—"This is the smallest of this genus that we know. Length, scarcely 19¾ inches; throat, stomach, and belly white; the rest of the plumage blackish; sent to us from Cayenne."

On which Gmelin says :—"Black" (instead of blackish), beneath white (again inaccurate), face feathered (whereas the plate distinctly shows that the space round the eye is bare.) Latham follows Buffon accurately, but forgets that 18 *French* are not 18 English inches. Stephens makes the same mistake and repeats Gmelin's error (corrected by Latham) of the space round the eye not being bare.

Nothing further seems to have been established about this species. The original figure shows that it was an adult, with very pale yellow, bill, naked skin of head and throat, legs and feet.

If this stood alone I should have had less hesitation in following the received practice of uniting this with the larger brown Booby, *sula*, Lin. *australis* Steph. But in the Reise Novara I find that Von Pelzeln seems to have obtained from near Rio Janeiro, what looks like a male of this species (Buffon's bird may have been a female.)

He says, "a male, total length, 21; expanse, 58·06." These dimensions apparently recorded in the flesh by Zelebor; "iris greyish white; feet light fleshy grey."

This small species I should guess to pertain to the coasts of South America, but to occur also elsewhere in the Atlantic.

I cannot claim to have furnished much original information in regard to this genus, but I think I have said sufficient to show how much it is in need of careful revision by modern ornithologists to whom the museums of Europe are open.

I have little doubts myself that a critical investigation of bills, feet, tails, proportions of primaries, and the like when taken along with such reliable records as exist of colours of soft parts in life, and localities where specimens were obtained, will demonstrate the existence of at least twelve separable species, and greatly restrict the areas of distribution of several of the few species now usually admitted.—A. O. H.

Additional Notes on the Birds of Sindh.

By Captain E. A. Butler.

Species lately noticed in Sindh by myself and not apparently as yet recorded from that province.

5.—Gyps bengalensis, *Gmel.*

I have observed the White-Backed Vulture on several occasions in the neighbourhood of Kurrachee, and there is a skin of a bird in the Frere Hall Museum that was shot in Sindh.

353.—Orocetes cinclorhynchus, *Vigors.*

I observed a Blue-Headed Chat Thrush in Kurrachee on the 9th March this year, sitting upon a low wall near the Infantry Barrack. It was not at all wild, and remained near the same spot for about ten days, during which period I saw it on several occasions, but never when I had a gun with me. It was evidently passing through in course of migration.

475.—Copsychus saularis, *Lin.*

I have noticed the Magpie Robin occasionally during the hot weather in the Lyarree Gardens about two miles from Kurrachee. I wonder if they breed here?

722.—Euspiza luteola, *Sparrm.*

I noticed a few pairs of the Red-Headed Bunting this year (1877), at Kurrachee towards the end of March, amongst some low scrubby bushes on the *maidan* between the Camp and Clifton. They were evidently migrating, as there is no cultivated

ground within miles of the place where they were, and they only remained for a few days.

272.—Mergus castor, *Lin.*

There is a fine specimen, a ♀, of this species in the Frere Hall Museum, shot by Captain Bishop at the Manorah Point off the Kurrachee Harbour, and another specimen has just been captured at the same place, now at the end of June.

[694.—Ploceus baya, *Blyth.*

A specimen sent me from Col. Haig, caught in the Kurrachee Collectorate, clearly belongs to this species, and not to either *manyar* or *bengalensis*.—A. O. H.]

987 *bis.*—Sterna albigena, *Licht.*

This Tern, already recorded from the Laccadives by Mr. Hume, and from Bombay by the Marquis of Tweeddale, is common in the Kurrachee Harbour all along the Mekran Coast, and in the Persian Gulf, at any rate during the latter part of the spring and during the summer. Whether they occur during the cold season I cannot yet say. Mr. Hume did not notice them in March.

[I have already (S. F., IV., p. 467-9) described and furnished dimensions of two males of this species killed on the 13th of February at the Cherbaniani Reef.

The following are the dimensions of *females* killed by Captain Butler at Kurrachee on the 12th and 14th of April:—

L.	Ex.	T.	W.	B. at fr. from margin of feathers.	B. fr. g.
13·75	28·	5·87	9·25	1·5	2 0
12·75	27·75	5·25	9·37	1·38	1·82
12·12	29·5	3·62 (imperf.)	10·12	1·39	1·94

The first two specimens are coming into breeding plumage, and have the entire breast, abdomen, and sides, a sort of pale smoky lead colour, only slightly mottled here and there with greyish white, and the throat and sides of neck white, mottled with dusky grey.

They had the irides blackish brown; the bill blackish, lake-red towards the base of both mandibles; the legs and feet bright red.

The heads and upper surface, as already described in the February specimens, so that they are still far removed from the full breeding plumage described, *vol. cit.*, 469.

The third is a young bird pure white underneath; all the coverts along the ulna brown, and with the winglet and primaries browner and duller than in adults in even winter plumage.

The whole upper back is white, and the mantle a paler and less pure grey than in the adult.—A. O. H.]

988.—Sterna minuta,* *Lin.*

This Ternlet is common at the same seasons as the preceding in the Kurrachee Harbour and along the Mekran Coast. In this case also I do not know whether the bird occurs also in the winter; at any rate Mr. Hume did not notice it. I found numerous nests on the bare *maidan* between Kurrachee and Clifton in May and June, collecting in all about 40 eggs, and subjoin a note from my nesting memoranda referring to its breeding habits:—

"*Kurrachee*, 6*th May* 1877.—Noticed several of these Terns (*S. minuta*) flying backwards and forwards over the *maidan* between the Camp and Clifton. As they had only just arrived, and as they appeared much devoted to the spot and bent on matrimonial pursuits, I got out of my trap and commenced a search for eggs. The soil was slightly damp from the effects of tidal inundations, with here and there patches of hard, dry, incrustated ground covered with saline efflorescence, and in these patches the nests, consisting of a slight depression in the ground scratched out by the old birds, were situated. I also found nests on ground cut up by Artillery Gun Carriages, the eggs being deposited in the wheel ruts and in the horse's foot-prints.

The description in "Nests and Eggs," Pt. III., p. 655, answers well to the eggs I procured, *viz.*, pale drab with, in some eggs, a faint greenish tinge or greyish stone color with primary streaks, blotches, and spots of deep brown and secondary clouds and spots of pale inky lilac. The markings vary considerably in extent and intensity, some eggs being boldly and numerously marked, whilst others are marked only faintly and sparingly. None of the nests I examined contained more than *two* eggs, which seems to be contrary to Mr. Hume's experience, and I may also observe that the birds in this neighbourhood feed exclusively in salt water, being common all over the harbour and in the salt marshes adjoining."

[The birds sent by Captain Butler do not belong to the same race as that whose nidification I described, and are certainly not *minuta* unless we agree to unite *all* the races of little Terns under one name.

I am by no means sure that this will not be found hereafter to be the proper course. The subject is one that I shall discuss at length in a separate paper on our Indian *Laridæ*, but in the meantime it may be as well to note, for the information of my

* 988 *ter.*—Sterna Saundersi, *nobis*, *vide infra*.

Indian readers, that, excluding *S. nereis* of Gould, which has even in the adult no black lores, but only a dark spot in front of [illegible] species of little Tern are admitted by Mr. Saunders, the latest writer on the subject.

The distinctions on which Mr. Saunders relies to separate these supposed species are, so far as I have been able to seize them, abstracted in the subjoined table:—

Name.	*Shafts of outer primaries.*	*Rump, tail-coverts, and tail.*	*Bill.*
S. minuta *L.*	Dark	... White.	... Yellow, black at tip.
S. antillarum, *Less.*	Dark	... Rump and tail coverts pale grey like mantle.	Ditto, but more slender and little black at tip.
S. superciliaris, *Vieill.*	?	... Back, rump, and tail darker than in the above.	Stout as in *minuta*, no black.
S. sinensis, *Gmel.* ...	White	... White, often a grey shade in non breeding plumage.	As in *minuta*, but perhaps stouter.
S. sumatrana, *Raffl.*	Black	... Grey as in back	... More slender than in *antillarum*.

As regards the last, I must dissent to this application of Raffles' name. Bad as his description is, and he was probably dealing with an immature bird, "the prevailing color white and tail like back," and the words "a blackish crescent extends from eye to eye, round the back of the head" to my mind fix the species as identical with *melanauchen*, Tem., the commonest Tern at the Andamans, Nicobars, the Straits and on the coasts of Sumatra.

The other name given by Mr. Saunders for this species, *pusilla* of Müller, seems to be quite indeterminable.

If the race is to stand as a species, it had better stand as *S. Saundersi*, that gentleman being practically, it seems to me, its discoverer.

There is no mistake as to the race; to it belong all the Kurrachee specimens sent by Capt. Butler, and all my Laccadive specimens, to it belong some Ceylon specimens and a Madras specimen and a nestling from Phillor on the Sutlege.

It has a trifle less deep bill than *minuta* (European); it has the shafts of the first three primaries (at least) black (the first occasionally in non-breeding plumage rather brown); and the entire rump, upper tail-coverts, and tail, (except the longest and external feather on either side, which is pure white) grey, unicolorous with the back.

Note that this grey varies in shade according to season, being considerably darker in the freshly-moulted bird.

It has in the breeding season more black on the tips of the mandibles than *minuta*; but the most conspicuous difference

is one not noticed by Mr. Saunders, and that is that, whereas in breeding plumage *minuta* appears to have always two dark primaries and true *sinensis* only *one*, *Saunde*[illegible] *least three*.*

But, if we are to make species on these grounds, we cannot stop here. The Common Tern of Upper India is not truly identical with *minuta* of Europe. It is very similar in size and colour; it has *two* and only two dark first primaries, but the rump is greyer than in *minuta*; the bill in breeding season has the merest specs at the tips of the mandibles, and the shaft of the first primary is *white*, or *brownish white*, and not as in *minuta* the same or almost the same dusky brown as that of the second.

Mr. Gould has always doubted the identity of the commoner Indian and European Lesser Terns, and the former, as above defined, if separated, should stand as *S. Gouldi*.

But this will not exhaust our Indian forms. There are birds like the preceding and with *two* dark primaries, but with the shafts of both *white*, and with no black at all even on the extreme tip of the bill, and with the upper tail-coverts, as well as the rump, and sometimes the central tail feathers, grey and this not in immature birds, but in males shot over the eggs in the Ganges at the end of April.

And I fear that there are a good many other changes to be rung, and pending the review of the series from various parts of India now coming in, I must say I feel doubtful how far these small differences will prove constant, and whether a still more comprehensive review than *I* shall ever be able to make will not eventually lead to the union of all these forms under the one name *minuta*.—A. O. H.]

There are two more birds to which I wish to draw attention, though I cannot enter them in the list at present, as unfor-

* The following is a detailed description of STERNA SAUNDERSI, snared on eggs, at Kurrachee, 10th May 1877.

Length, 9·12; expanse, 19·25; tail, 3·0; wing, 6·13; bill at front, 1·12; from gape, 1·5; tarsus, 0·6.

Legs and feet dusky yellowish olive; bill yellow, broadly tipped dusky; irides blackish brown.

A triangular frontal patch, the angles reaching to within 0·12 of the eyes, white; a very broad stripe through the lores to the eye black; a narrow white line intervenes between this stripe and the upper mandible.

The whole crown, occiput and short full occipital crest and sides of occiput as low as the lower margin of the eye, velvet black; the central 2/3rds of the lower eyelid white, and no black below this; all the rest of the sides of head and neck, chin, throat, entire under parts, wing-lining and exterior tail feather, pure white.

The first three primaries black with black shafts and broad white margins to inner webs; their greater coverts dusky black.

The whole of the rest of the upper surface, including wings and tail, and excepting parts and feathers, already described, a most delicate satin grey, contrasting in the strongest manner with the early black primaries.—A. O. H.

unately I have not yet procured specimens. The first is a Tern occurs on the Hubb river and on the Indus, described to ral persons who have seen it as a bird with a beautiful ast. I have no doubt whatever that it is

985 *bis.*—**Sterna dougalli,** but time must prove the fact, as I have not yet seen a specimen of the bird alluded to.

The second is *Irena puella*, Lath. There is a specimen of the Fairy Blue Bird (♀) in the Frere Hall collection at Kurrachee labelled Sehwan, and as Mr. Murray, Curator of the Museum, assures me *positively* that it was shot in that neighbourhood, I think it right to mention the fact, although I cannot vouch personally for the authenticity of its occurrence in that locality, which must, to say the least, be altogether abnormal,—Sindh being alike, geographically and climatically, outside the range of this species.

With reference to the remarks under the head of *Coccystes linus*, ante, Vol I., p. 173, I may mention that the Pied-ed Cuckoo arrives in Sindh about the same time that it does uzerat, *viz.*, about the last week in May, leaving again er the breeding season about the middle of October. It is ommon enough now (June 28th) in the gardens on the Lyarree river referred to by Mr. James, and surely must occur in other parts of Sind as well!

Strange to say, although I have always been on the look-out for *Pyrrhulauda melanauchen*, especially in the neighbourhood of Kurrachee since the announcement of its occurrence in Sind, S. F., Vol. I, p. 212, and since Mr. Blanford directed my attention to the species in a conversation I had with him last cold weather, I have never yet met with a single specimen. It must therefore, I fancy, be a very uncommon bird, or else a mere seasonal visitant. *P. grisea* is common everywhere in the neighbourhood of Kurrachee.

An *Alaudula*,* which I believe to be *raytal*, is very common at Kurrachee; but, as it may prove to be *adamsi*, I have not included it in this list.

Mr. Hume appears not to have met with *Cursorius coromandelicus* when he visited Sind; but Mr. James has procured specimens for him since. It is not rare in the neighbourhood of

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* This is unmistakably *A. adamsi*, with the much shorter and stouter bill, a permanent resident on the banks of the Indus and all its affluents, and occurring occasionally on the Jumna, the westernmost of the Himalayan born affluents of the Ganges, as low as Dehli, where one specimen now in my Museum was shot by Capt. Bingham. Quite distinct alike from *A. raytal*, a permanent resident of the Ganges, the Brahmapootra and Irrawady, and *their* affluents, and from the two migratory forms of *gispoletta*.—Ed., S. F.

Kurrachee, and breeds on the open *maidans* during the hot weather, at which season I observed several pairs (one pair with young ones on the 6th June) that were evidently breeding, found no eggs.

Mr. James also adds *Dendrocygna major* to Mr. Hume's list, and I may mention that a few live specimens were sent to Kurrachee this year from the Munchur Lake and preserved for the "Frere Hall" Museum, where they are now to be seen.

E. A. B.

Resume of recent Additions to the Sindh Avifauna.

So many additional notes on the Avifauna of Sindh have appeared since I published my first account, (I. 148.) that it may save ornithologists, especially those now working in Sindh, a good deal of trouble in hunting out references if I publish a résumé of all these additions, 54 in number. My first list recorded 280 species (including *Sturnus minor*, of which Blanford has since obtained many specimens), making a total up to date of 334, or only 16 short of the total which I predicted (III, 37) for the province.

Of the additions many have only occurred in the Thur and Pakhur and the country *east* of the Indus which I was unable to visit. Others only occur at seasons other than that in which I travelled in Sindh, and of several of these (e. g. *Aedon familiaris*, *Sylvia cinerea*) I predicted the occurrence long before they were found.

Out of the whole 54 additions there are not 20 that *I could* have obtained in the tracts I traversed at the time I visited them, and I think that to get 280 out of 300 species in a seven week's hurried tour was not so bad after all.

The following is the complete list of addenda, with the names of those who added them, and a reference to the vol. and page of *Stray Feathers* where they were first notified :—

1.—Vultur monachus, *Blanford*, V. 245.
2.—Otogyps calvus, *Blanford*, V. 245.
5.—Gyps bengalensis, *Butler*, V. 322; *Blanford*, V. 245.
39.—Spilornis cheela, *Blanford*, V. 245.
68.—Asio accipitrinus, *Blanford*, V. 245.
72.—Ketupa ceylonensis, *Blanford*, V. 245.
74 *bis*.—Scops brucei, *Blanford*, V. 245.
87.—Cotyle riparia, *Blanford*, IV. 507.
98.—Cypselus melba, *Blanford*, V. 245.

112.—Caprimulgus asiaticus, *James*, I. 419.
166.—Picus mahrattensis, *Blanford*, V. 245.
197.—Xantholæma hæmacephala, *Blanford*, V. 245.
222.—Taccocua affinis, *Blanford*, V. 245.
269 *quat.*—Hypocolius ampelinus, *Blanford*, III. 358.
299 *bis.*—Butalis grisola, *Hume*, IV. 225.
353.—Orocætes cinclorhynchus, *Butler*, V. 322.
386 *bis.*—Pyctorhis altirostris, * *Blanford*, V. 245.
439.—Chatarrhæa earlii, *James*, I. 420.
462.—Pycnonotus pusillus, *Blanford*, V. 246.
475.—Copsychus saularis, *Butler*, V. 322.
488.—Saxicola opistholeuca, *Blanford*, V. 246.
490.—Saxicola morio, *Blanford*, V. 246.
492 *ter.*—Ædon familiaris, *Blanford*, V. 246.
516.—Acrocephalus dumetorum, *Blanford*, V. 246.
539.—Cisticola schœnicola, *James*, I. 420.
559.—Phylloscopus nitidus, *Blanford*, V. 246.
582 *bis.*—Sylvia cinerea (rufa), *Blanford*, V. 246.
591.—Motacilla personata, *Blanford*, V. 246.
593 *ter.*—Budytes flavus, *Blanford*, V. 246.
694.—Ploceus baya, *Hume*, V. 323.
711—Gymnoris flavicollis, *James*, I. 420.
716.—Emberiza huttoni, *Blanford*, V. 246.
716 *bis.*—Fringillaria striolata, *James*, I. 420.
718.—Emberiza stewarti, *Blanford*, V. 246.
721.—Euspiza melanocephala, *James*, I. 420.
722.—Euspiza luteola, *Blanford*, V. 246; Butler, V. 322.
756.—Mirafra erythroptera, *Blanford*, V. 246.
761 *ter.*—Melanocorypha bimaculata, *Blanford*, V. 246.
767.—Alauda gulgula, *James*, I. 420.
834.—Turnix jodera, *LeMessurier*, IV. 225.
840.—Cursorius coromandelicus, *James*, I. 421.
842 *bis.*—Glareola pratincola, *Blanford*, IV. 507.
? 845 *bis.*—Charadrius pluvialis, *Blanford*, V. 247.
856.—Lobipluvia malabarica, *LeMessurier* III. 418.
870.—Gallinago stenura, *LeMessurier*, III. 380.
878.—Numenius phæopus, *LeMessurier*, III. 381.
891.—Totanus glareola, *James*, I. 421.
? 904.—Gallicrex cristatus, *Blanford*, V. 247.
910.—Porzana pygmæa, *Blanford*, V. 247.
953.—Dendrocygna fulva (major), *James*, I. 421.
972.—Mergus castor, *Butler*, V. 323.
? 985 *bis.*—Sterna dougalli, *Butler*, V. 327.
987 *bis.*—Sterna albigena, *Butler*, V. 323.
988 *ter.*—Sterna saundersi, *Butler*, V. 324.

* I consider this a distinct species, *P. griseogularis*, V., 116.

It will be noted that I do not as yet include *Irena puella* referred to by Captain Butler, V. 327. If a specimen of this species has really ever occurred in Sindh in an apparently feral state, it must I think have been an escaped prisoner. *Irenas* are not easy to keep alive in captivity, but natives at times manage to keep a *pair* (single birds always die I think) and prize them highly.—A. O. H.

Reguloides viridipennis, *Blyth.*

Mr. Seebohm, in his recent admirable monograph of the *Phylloscopi* (*Ibis*, 1877, p. 83), thus describes Blyth's *R. viridipennis*:—

"*Bill, large*; under mandible, pale.

Upper parts, yellowish olive-green; wing and tail, greyish brown, with the outside edge of each feather broadly margined with yellowish green; superciliary streak pale yellow.

Head, darker-coloured than the back, *with a pale mesial line*; underparts, yellowish white, greyer on the breast and flanks.

Axillaries and wing-lining, bright yellow.

Fourth and fifth primaries longest; third and sixth rather shorter; seventh, eighth, and ninth each considerably shorter than the preceding; *second primary about equal to the ninth.*

Exposed part of bastard primary ·5 to ·65.

Two distinct wing bars.

Length of wing—male—2·4 to 2·25; female 2·25 to 2·1.

Length of tail—male—1·9 to 1·8; female 1·8 to 1·7.

Legs and claws brown."

Mr. Blyth's original description (J. A. S. B., 1855, XXIV, p. 275), is as follows:—

"Phylloscopus viridipennis, nobis, *n. s.* A fourth species of the *Reguloides* sub-group (J. A. S., XXIII, p. 487), and most nearly resembling Ph. chloronotus;* but readily distinguished from that species by having the rump uniformly coloured with the back, also by having a longer and differently coloured bill, and legs of much darker hue. From Ph. proregulus† (*Regulus modestus*, Gould), it is distinguished by its inferior size and much brighter colouring, the mesial coronal streak being as much developed as in Ph. chloronotus, and of a purer yellowish-white contrasting with a blacker shade of dusky: edge of wing considerably brighter yellow than in the others; the wing-band and also the tibial

* Blyth here really intends, *R. proregulus*, Pall. In those days there was a confusion about these species.—Ed., S. F.

† Mr. Blyth here refers *R. superciliosus*, Gm.—Ed., S. F.

plumes tolerably bright yellow, the latter constituting another good distinction: but a further and more conspicuous distinction consists in the wing beyond its coverts being uniformly green, without a trace of the REGULUS-like variegation seen in PH. PROREGULUS, and less conspicuously in PH. CHLORONOTUS: there is no dusky patch posterior to the coverts, nor whitish tip or border to any of the great alars; but the secondaries are broadly margined with tolerably bright green, and the tertiaries are merely of a duller green throughout, brightening on their outer edge, and are not dusky and contrasting (as in the other species). In brief, PH. VIRIDIPENNIS may be described to have the upper-parts vivid olive-green, brightest on the margins of the wing and tail feathers; lower parts albescent, tinged with yellow; crown dusky mixed with green, with bright yellowish-white supercilia and coronal streak continued over the occiput; the supercilia more yellowish anteriorly; a broad pale yellow wing-band formed by the tips of the great coverts of the secondaries; and the smaller range of wing-coverts slightly tipped with yellowish; tibial plumes bright [illegible]ish; the margin of the wing pure canary-yellow; upper [illegible]ible wanting in the specimen, but the lower is wholly [illegible]w; legs infuscated brownish. Length, about 4 inches; of [illegible]h tail, 1⅝ inch; wing 2 inch; having the short first primary $\frac{7}{16}$ inch; the second ¾ inch longer than the first, and ⅜ inch shorter than the longest primaries; bill to gape ½ inch, and tarsi ¾ inch."

We have recently obtained several beautiful specimens of the true *viridipennis*, Blyth, from Mooleyit, where also Mr. Davison found the bird breeding, and took the nest and eggs, and I cannot help believing that a larger and distinct species has been confounded with Mr. Blyth's, and that it is this larger and as yet unnamed species which Mr. Seebohm has described.

In the first place, the dimensions given by Mr. Seebohm are far too large. In the Mooleyit birds the wings of the male measure 2·0; of the female 1·9. In the second place Mr. Seebohm omits one of the leading characteristics of the Mooleyit birds, *viz.*, that the whole of the inner web of the outer-tail feathers and a portion of that of the next feathers are white.

Seeing the great care with which Mr. Seebohm's descriptions have been prepared, and looking to the fact that he has not overlooked the similar peculiarty in *erochrous*, *presbytis*, *&c.*, I cannot believe that had he had the true *viridipennis* before him, he would have omitted to notice this peculiarity.

In many respects our bird approaches *presbytis* of Müller, but it has two distinct wing bands, though the upper one is at times broken and obscured.

I will endeavour to describe our bird according to Mr. Seebohm's own formula.

Bill, large; under mandible, pale.

Upper parts, rather bright olive green; wings and tail, hair brown, the outside web of each feather broadly margined with olive green; entire inner web of outer tail-feather, pure white; more or less of that of the next succeeding feather also white; inner webs of quills, except the bastard primary, margined white, the earlier ones at their bases only, the later ones almost to their tips; superciliary streak from nostrils to nape pale yellow; a large conspicuous dusky green spot behind the eye, continued as an indistinct line under the prolongation of the supercilium.

Head very much darker colored than the back, almost black on the sides of the occiput, with a conspicuous broad very pale yellow mesial line.

Under parts yellowish white, greyer on the breast and flanks; edge of the wing pale yellow; wing-lining and axillaries white with a faint primrose tinge; lower tail-coverts similar.

Fourth and fifth primaries longest; sixth sometimes s[illegible] sometimes equal, in one specimen a shade longer; thir[illegible] to 0·07 shorter; second 0·3 to 0·35 shorter, and equal[illegible] shorter than the tenth.

Bastard primary rather narrow; exposed portion 0·5 to 0·[illegible].

Two distinct wing bars.

Length of wing—male—2·0; female 1·9.

Length of tail—male—1·63; female 1·59.

Legs and feet (in skin) dusky; claws rather paler.

Now I think it will be admitted that this is not the bird described by Mr. Seebohm as *viridipennis*; on the other hand this is the one *Reguloides* common on the upper parts of Mooleyit, and which breeds there, and there can therefore, I believe, be extremely little doubt, that it is the true *viridipennis*.

The larger species described by Mr. Seebohm will, if distinct, require a new name. I shall not, however, propose any new name for it, because as I apprehend the bird described as *viridipennis* by Mr. Seebohm is the bird that Mr. Brooks and I have hitherto considered to be *viridipennis*, and in regard to which, I have always found an extreme difficulty in separating large examples of it from small bright-colored ones of *trochiloides*.

No doubt Mr. Seebohm has laid down a diagnosis between the two, based on a small difference in the proportions of the primaries; but quite recently, on examining a large series of this group, I have had reason to fear that in the case of many of these species Mr. Seebohm's diagnoses, though extremely

correct for a considerable proportion of the specimens, do not hold invariably good. In fact that, in *most* species, at any rate, slight variations in the proportional length of the 2nd and later primaries occur.

Anyhow the distinctness from *trochiloides* of the form which Mr. Seebohm has described under Blyth's name of *viridipennis* is to me so far a matter of doubt that I should prefer to leave it to him to assign to it, if necessary, a new name. All I feel confident of is that his bird is *not*, and that the bird I have above described *is* the true Mooleyit *viridipennis*.

Naturally the consideration arises how could Blyth have overlooked the white on the tail feathers. Doubtless it is inconspicuous in some specimens on the penultimate feathers, but it is invariably conspicuous on the outer ones. My belief is that in Blyth's specimen, which was manifestly a poor one, the entire upper mandible being wanting, the outer tail feathers also were missing. One of our females, shot off the nest, has lost both outer feathers on one side, and nearly half the outer [illegible] the other.

[illegible]as on the 2nd of February, just at the foot of the final [illegible]f Mooleyit, at an elevation of over 6,000 feet that Mr. [illegible]on came upon the nest of this species. He says:—

"In a deep ravine close below the summit of Mooleyit I found a nest of this *Reguloides*. It was placed in a mass of creepers growing over the face of a rock about seven feet from the ground. It was only partially screened, and I easily detected it on the bird leaving it. I was very much astonished at finding a nest of *Reguloides* in Burmah, so I determined to make positively certain of the owner. I marked the place, and after a short time returned very quietly. I got within a couple of feet of the nest; the bird sat still, and I watched her for some time, the markings on the top of the head were very conspicuous. On my attempting to go closer the bird flew off, and settled on a small branch a few feet off. I moved back a short distance and shot her, using a very small charge.

"The nest was a globular structure, with the roof slightly projecting over the entrance. It was composed externally chiefly of moss, intermingled with dried leaves and fibres, the egg cavity was warmly and thickly lined with a felt of pappus.

"The external diameter of the nest was about 4 inches; the egg cavity one inch at the entrance, and 2 inches deep.

The nest contained 3 small pure white eggs."

A. O. H.

Novelties?

Pellorneum ignotum, *Sp. Nov.*

Like P. Tickelli, *but markedly smaller, and chin, throat and upper breast pure white and no fulvous on lower surface; wing*, 2·25.

There is a small very typical and dull colored *Pellorneum*, apparently common about Dollah, near Suddya, at the extreme eastern end of the Assam valley, which does not appear to have been as yet described.

My specimens are extremely indifferent ones, but bills, legs, feet, and one wing in one specimen are intact, so that there is no doubt, I think, as to the genus to which they should be referred, though the tails are imperfect. So much of these as remains agrees with that of *Pellorneum*.

Dimensions, (in the flesh) :—

♂. Length, 5·7; expanse, 7·5; wing, 2·25; tail, [illegible] tarsus, 0·9; bill, straight from forehead, 0·6.

In the skins, the upper mandible is blackish brown, the lower horny white. The legs, feet, and claws are pale horny yellow.

The entire upper surface is a deep rather rufescent olive brown, much as in *Pellorneum Tickelli*, rather more decidedly rufescent on the tail and outer webs of the quills.

The chin, throat, upper breast and centre of lower breast and upper abdomen are white without any fulvous tinge.

The sides of the neck are like the back, but rather paler; the sides, flanks, lower abdomen, vent and lower tail-coverts similar, but more and more rusty towards the lower tail-coverts.

The wing lining is dull white.

The inner webs of the quills are hair brown.

The lores are pale—in one pale yellowish, in another pale greyish, brown. The ear-coverts are duller, perhaps a *shade* greyer than the cheeks and sides of the neck, and are faintly paler shafted.

The bill, wings, and feet are *typical*; of the tails, I must speak with some hesitation, as they are imperfect in my specimens, which generally are so indifferent that, were the species not very distinct from all that are known to me, I should have hesitated to describe it from them.

Phylloscopus Seebohmi, *Sp. Nov.*

Bill moderately large—pale underneath; no wing bar; first primary of moderate breadth; exposed portion, 0·58; 3rd and 4th primaries longest—2nd between 6th and 7th; wing in ♀, 2·1; tail, 1·85.

The small size, coarse bill, very pale beneath, and entire absence of any trace of a wing bar seem to distinguish this species at once.

Thanks to Mr. Seebohm, after whom I have named it, I have had no difficulty in deciding that it must be undescribed or, at any rate, unknown to him, which, after the labour and research he has devoted to the Willow Warblers,* may *primâ facie* be assumed to be the same thing.

In size and general appearance this supposed new species most resembles *plumbeitarsus*, and appears to have had bluish white tarsi; but the coloration is slightly different, as are portions of the primaries, and there is absolutely *no* bar.

have only one specimen, a female, killed at Tavoy in ch, but this, except that the extreme tip of the bill has been shot off, is a *singularly* good specimen.

I shall follow Mr. Seebohm in my description:—

Bill, large; under mandible pale yellowish white; upper mandible, rather pale brown.

Upper parts brown, with in places a faint olivaceous tinge; rump, pale dull olive green; upper back, paler, greyer, contrasting with darker brown of head and nape. Wings and tail, pale hair brown; the quills just tinged on the margins of outer webs with dull olive green. A conspicuous dull white supercilium from nostrils to nape; a broad brown stripe through lores and post ocular region; ear-coverts, brownish white.

Head, much darker than upper back, about the same as middle of back.

Under parts, white, sullied with a greyish brown tinge; flank feathers (some), lower tail coverts, and wing lining, purer white; a faint yellow tinge along the edge of the wing.

Third and 4th primaries longest; 5th decidedly shorter; 6th and 7th each successively shorter; *2nd primary a little shorter than the 6th.*

Bastard primary of moderate breadth, 0·11; length of exposed portion 0·58.

No wing bar.

* *Vide* his monograph of the *Phylloscopi*. Ibis, 1877, 66.

Length of wing, female, 2·1.
Length of tail, female, 1·85.

Tarsi, very slender, apparently pale bluish fleshy; feet, dingy yellowish.

This is a true *Phylloscopus*, typical in all details and not in any way approaching the *Horeites* group, with their rounded tails and wings, huge first primary and lax, silky under plumage.

The bird, referred to by Mr. Seebohm, *Ibis*, 1877, 75, as *like Phylloscopus tenellipes*, viz., *Phylloscopus pallidipes*, Blanford, is, as Mr. Brooks long ago pointed out, a veritable *Horeites*, and independent of structural differences, which are very marked, is altogether differently colored to *tenellipes*, when the birds are laid side by side.

I notice that Mr. Seebohm says of *P. tenellipes* that the only skins he has ever seen or heard of are two in Mr. Swinhoe's collection.

I have several, collected by Davison, in various parts of Tenasserim. Dr. Armstrong obtained one at Amherst. M[illegible] Oates' shikarees whom he sent down to Malewoon, a sp[illegible] collecting locality which Davison was the first to wor[illegible] tained two or three specimens.

We have had this species for years; and both Mr. Br[illegible] and myself have, I find, separately noted on the covers different specimens that the bird was unknown, and required description; but it was not until I received Mr. Brooks' valuable paper, S. F., IV., p. 276, that I identified the species, an identification which Mr. Seebohm's exhaustive diagnosis has entirely confirmed.

Another allied species has lately turned up, viz., *Reguloides coronata*, T. and S. Mr. Oates first sent me specimens to name, obtained by his shikarees at Malewoon. But immediately afterwards Davison sent others obtained about the same time at Malewoon.

The characteristic point about this species is, as stated by Mr. Brooks, S. F., IV., p. 275, the pale yellow lower tail-coverts.

Of the 33 known species of *Phylloscopi* (including in this genus as Mr. Seebohm does as sub-genera, *Acanthopneuste*, *Phylloscopus*, and *Reguloides*,) all, but *eight*, are now known to occur within our limits, viz. *xanthodryas*, *presbytis*, *umbrovirens*, *sibilatrix*, *trochilus*, *gatkei*, *bonellii* and *collybita* (*rufa*), and the first of these will most probably yet be found in Tenasserim.

Chatorhea eclipes, *Sp. Nov.*

Like C. caudata, *but much larger; the upper surface darker and more strongly striated; tail more strongly banded; feathers of breast and sides dark shafted.*

In the Punjab, Trans-Indus and the lower valleys of the surrounding hills, occurs a very well-marked and distinct race of our common *Chatorhea caudata*—in my opinion far more entitled to specific distinction than is *C. huttoni*, Blyth.

This latter species was separated, J. A. S. B., XVI., 476, 1847, in the following terms :—

"Merely differs from *M. caudatus* in its larger size and the general paler hue of its upper parts.

Length of wing 3·5; and of middle tail feathers above 5·0. From Candahar."

Mr. Blanford, in his Zoology of Persia, figured this species, (Pl. XIII., f. 1.) and remarked (p. 204) :—

"*C. huttoni* differs from the Indian *C. caudata*, Dum, not in the larger size and conspicuously larger bill and legs, also in its colouration. It is a decidedly greyer bird, with rrower and rather paler striation on the head and back. The roat is generally pale greyish brown instead of white, and the rest of the lower parts are greyer and less fulvous. Specimens from Mekran are somewhat intermediate in character, the throat being whiter and the dimensions a little smaller than in the typical *C. huttoni*, and this is especially the case in the specimen which I obtained at Gwadar."

He also gives dimensions showing :—

Length, 9·25 to 10·5; expanse, 9·75 to 11·5; wing, 3·25 to 3·5; tail, 4·25 to 5·0; tarsus, 1·15 to 1·25; culmen, 0·88 to 1·0. The males being, of course, somewhat larger than the females.

Huttoni is the species I have obtained throughout Khelat. Specimens thence received are inseparable from Persian ones, with which I have compared them; but Sindh specimens are intermediate, both in size and coloring.

The present species, a rather small and faded specimen of which, as I now believe (I have not the specimen to refer to), I figured in Lahore to Yarkand, p. 197, Pl. IX., for *C. caudata* seems to be better separated from this latter than *huttoni*, as I have hitherto failed to obtain intermediate forms.

The following are the dimensions of an adult female which I killed at Peshawar, and the only specimen I have which was measured in the flesh :—

Length, 10·2; expanse, 9·8; wing, 3·2; tail, 5·2; tarsus, 1·01; bill from forehead, 0·88; from gape 1·02.

Males are larger, the wing in one being 3·45, the tail, 5·5.

The birds are strikingly larger than in *caudata*—quite as large as any *huttoni* that I have seen from Khelat or Persia; but whereas *huttoni* runs paler and greyer than *caudata*, the present species runs much darker and warmer colored.

The bill (in winter) is dusky brown, tinged with fleshy yellow towards the base; the legs and feet are pale horny; the irides brownish red.

In the freshly-moulted bird killed, say in December, the whole upper surface is brown, a purer warmer and less grey shade than in *caudata*, and the dark central stripes of head and back are much darker, and on the back broader than in that species. The tail, too, is very conspicuously transversely rayed.

The ear-coverts are much darker; the whole lower surface is warmer colored, more fulvous and browner on the flanks; and all the breast-feathers, and those of the sides, have darker central shaft stripes.

Of course birds of the same season must be compared. In August the birds are scarcely darker than a Dece *caudata*; the greater part of the bill is horny yellow, an striations of the breast and raying of the tail have wh or to a great extent, disappeared; but even at this seas they are equally darker and warmer colored than *caudata* in the same abraded stage.

I only know of the occurrence of this species in the N.-W. Punjaub in our own territories, Trans-Indus, and the low hills and valleys leading into these from Cashmere.

Cyornis olivacea, *Sp. Nov.*

Sexes alike. Upper surface rich rufescent olive, more rufescent on tail. Lower surface white, slightly tinged with fulvous on middle and olivaceous on sides of breast. Lower mandible black or blackish. Wing lining pure white or nearly so. Legs and feet pinkish white.

In the extreme southern portion of the Tenasserim Provinces a *Cyornis* of the *ruficauda* group occurs, which appears to me to be undescribed. The upper surface is extremely close in coloration to that of many females of the Burmese representative race of *rubeculoides*, but it has a much larger bill than that species, though smaller than that of *magnirostris*. The upper surface of the females of which is also very like that of our present bird.

The following are dimensions recorded in the flesh of several males :—

Length, 5·75 to 6; expanse, 9·25 to 9·75; tail, 2·45 to 2·75; wing, 2·82 to 3·0; tarsus, 0·75; bill from gape, 0·75 to 0·82.

Bill black; iris brown; legs, feet, and claws pinkish white; we have by some accident no females measured in the flesh. A female measured in the skin :—

Length, 5·5; wing, 2·75; tail, 2·25; bill from forehead, 0·63.

The feet are colored as in the male, but the bills are dark brown instead of black.

I can discover no other difference in the plumage of the sexes.

The entire cap and nape is dark olive; the back the same color with a rusty tinge; the upper tail-coverts are rather more decidedly rufous; the tail rufescent olive, margined on the outer webs, chiefly on the basal halves of the feathers, with a more decided ferruginous; the wings are hair brown; all the feathers margined on their outer webs with the same color as the back, and the whole outer webs of the tertiaries of this same ; the lores are greyish-white, bounded above by a dark the cheeks, ear-coverts and sides of the head are greyish e; the chin, throat, and lower parts are pure white, tinged the middle of the breast, with pale fulvous, and on the sides f the breast and flanks with olive, sometimes mingled with pale fulvous; the wing lining and axillaries are generally pure white, in some specimens with a faint creamy or fulvous tinge.

From *ruficauda* its nearest ally it differs amongst other points in the somewhat larger bill, the darker and richer tone of the upper plumage, the pure white chin, throat and abdomen, the black or blackish under mandible, and the pinkish white feet. In *ruficauda* the legs and feet are dark plumbeous, and the lower mandible pale, yellowish at base.

From *Cyornis mandelli* it differs in its much longer bill, in its dark under mandible, in its white or whitish wing lining, in the less rufescent tinge on the back, in the absence of white round the eye, in its more powerful legs and feet, &c.

From female *magnirostris* it differs in its smaller bill, more rufescent tone of upper plumage, white throat, and breast only slightly tinged with fulvous. From the female of the Burmese race of *rubeculoides* it differs by its much larger bill, pure white chin and throat, and only faintly fulvescent breast; and of course in the matter of the sexes being entirely alike it differs from *all species of the rubeculoides and hyacinthina* types.

Republications.

Pellorneum pectoralis, *God.-Aust.*

Head to nape dull dark chestnut; back, wings, and tail umber-brown, the last indistinctly barred and with narrow pale tips, the outer primaries edged paler. Lores and frontal feathers pale, tipped with pale black, extending as an obscure supercilium to the nape, where the feathers become broadly dingy white on their upper web, dark brown on the lower, those on the back of the neck are broadly black-centred. The ear-coverts are umber-brown, darker behind, forming a crescentic margin again bordered lighter. The chin is pure white for three-quarters of an inch; a dark gorget of broadly black-centred feathers then crosses the upper breast, the centreing of the feathers becoming very large, oblong, and conspicuous on the elongate feathers of the sides of the neck, but paler less defined on the flanks. From the gorget all beneath is rufescent ochre. The under tail-coverts are dark, bord with white.

Legs pale ochre. Irides vermilion.

	Wing.	Tail.	Tarsus.	Bill at front.
♂	3·0″	3·0″	1·12″	0·70″
♀	3·0	3·0	1·0	0·63

Hab.—Saddya, Assam (M. J. Ogle).

This species is nearest and closely allied to *Pellorneum mandellii*, W. Blanford, described from Darjeeling, which is the same as Hodgson's *P. nipalensis*, a MS. name never published. It is a larger bird as regards wing, and the legs are more robust. The principal difference lies in the far larger extent of the dark streaking on the sides of the neck: the dark centred feathers are longer and broader than in *P. mandellii*, the black oblong spots being 0·4 in. by 1·3 in. in this new form as against 0·3 by 1·0, while those on the upper nape are bordered with white above; the top of the head is dark chestnut, opposed to a dull rufous umber in the Darjeeling species. Yet the greatest departure is in the abrupt termination of the white chin succeeded by the ochraceous tint of the rest of the under parts, while the black centreings of the feathers are so broad and closely distributed as to form a decided dark gorget, whence they spread away down the sides of the breast. The feathers of the head and nape are more lengthened and fuller than in the other species.

We appear to have in this genus—all near allies:—

1. PELLORNEUM RUFICEPS,* Swainson.
South India.

2. PELLORNEUM MANDELLI, W. Blanford.
Sikim, and the Garo and Khasi Hills.

3. PELLORNEUM PECTORALIS, G.-A.
Eastern Assam.

4. PELLORNEUM TICKELLII, Blyth.
P. minor, Hume, S. F., 1873, p. 298; from Tenasserim.
P. subochraceum, Swinhoe, A. M. N. H., 1871, p. 257, also from Tenasserim.
Burmah and Tenasserim.

† I cannot help thinking that the two last names are only synonyms. In the list of Birds from Tenasserim (S. F., Vol. II., p. 476), the very country whence Tickell sent his specimens to Blyth, *P. minor* is recorded as common, but *P. Tickellii* as not yet obtained. Comparing specimens lately [illegible]d from Tenasserim with the original description and with [illegible]men in the Indian Museum (also from Tenasserim) which [illegible]s every reason for believing to be one of the original types, [illegible]arrive at no other decision but that *P. minor* and *P. [illegible]chraceum* are nothing else than *P. Tickellii*; nor is it likely [illegible]t two distinct species whose dimensions are so exceedingly close are to be found in so limited an area. J. A. S. B., XLVI., pt. 2, p. 41, 1877.

Actinura Oglei, *God.-Aust.*

Above rich umber-brown with a sienna tinge, strongly rusty on the head and nape, the soft feathers of the back and rump are

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* Is given in Blyth's list of the Birds of Burmah, but I doubt if true *P. ruficeps* is found out of Southern India.—*God.-Aust.*

† It is absolutely inexplicable that after Mr. Oates' conclusive note, S. F., IV., 406, (the correctness of which numerous specimens now exist to attest,) a good naturalist like Major G. Austen should make such a statement as this.

Then he refers to our first list of the Birds of Tenasserim, showing that we had not yet obtained specimens of *Tickellii* "in the very country whence Tickell sent his specimens," overlooking the fact that Tenasserim is nearly 600 miles in length, and that until quite recently, we had never collected in the locality whence Tickell's specimens came.

Lastly, he entirely ignores *P. palustre*, Jerd., of Cachar, Sylhet and Assam. (S. F., I., p. 4).

As to this present supposed new species I hesitate to accept it. I have both *Suddya and Darjeeling* specimens answering perfectly to Major G. Austen's description and dimensions and yet clearly all *P. nipalensis*, Hodgs.

This latter is a very variable species, not only in size, (the wings ranging from 2·5 to 3), but equally so in colour. It struck me that two of the Suddya birds were more *rufescent* and more strongly marked than *nipalensis*, and so they proved to be than the first few of the latter I took out, but I very soon found others of these, quite identical. One Suddya specimen is quite pale and feebly marked and matches the Darjeeling birds that I first took out exactly.

[illegible]nk therefore that this *P. pectoralis* is a very doubtful species.—ED. S. F.

very finely and indistinctly crossed with narrow bars. A well-developed frontal band of white having the shafts of its feathers black, merges into a well-defined pure white supercilium and is continued over the back, ear-coverts and down the side of the neck, where the white feathers become bordered with black, the supercilium thus terminating in scattered spots. This white supercilium is bordered above with black. Lores dark, chin pure white, breast grey, flanks and abdomen dull earthy brown. Wings and tail rich umber, narrowly barred with black-brown, the tail having about 24 such bars. Irides crimson lake; legs and feet umber-brown.

Length about 6″; wing 2·8″; tail 2·8″; tarsus 1·1″; bill at front 0·60″.

The bill, which is stronger and deeper than in any other species of the genus, is black above, grey below.

Hab.—Shot on Manbum Tila, on the Tenga Pani river, near Saddya, at 800 ft. (M. J. Ogle).

This is another new form for which we have to than[k] Ogle, after whom I have much pleasure in naming it. [It] one of the most beautiful and distinct forms of the gen[us] white chin and superciliary stripe being a most conspi[cuous] departure from the type of coloration possessed by the o[ther] species.

Actinura Oglei, in the coloration of the head and nape, and in its white throat, has remarkable affinities for *Turdinus guttatus*, Tickell, from Tenasserim. This last bird can hardly find a place in the genus *Turdinus* as exemplified by such forms as *T. brevicaudatus* and its allies. In the stout legs and feet it is akin to *Actinura*, and in the form of the nostrils it is also like *Actinura Oglei*. The principal departure to be noted is in the absence of barring on the wings and tail, but this is to be discerned, though it is indistinct, and is noted by Tickell in his original description, when the barring was no doubt more apparent than it now is in the faded type specimen in the Indian Museum, Calcutta. In *A. Oglei* this barring, I notice, is far less conspicuous than in *A. Egertoni*, *A Waldeni*, &c. Altogether these two birds present a most instructive case of close generic relationship. J. A. S. B., XLVI., pt. 2, p. 42, 1877.

Pomatorhinus stenorhynchus, *God.-Aust.*

Desc.—Above pale umber-brown with an ochraceous tinge, richer brown on the head, a more umber tint on the tail and wings, a narrow pure white supercilium from base of bill over the eye to the ear-coverts, but not extending further. Lores black, passing under the eye to the ear-coverts, which are [g]

black and bounded posteriorly with rufous brown. Chin and upper throat pure white, breast and abdomen pale rufescent, flanks and under tail-coverts pale ochraceous brown.

Bill very long, tapering, curved, and much compressed; bright orange-red. Legs and feet horny grey.

♂ Length abt. 8″; wing 4″; tail 4·4″; tarsus 1·35″; bill at front 1·45″
♀ „ 3·25; „ 3·9; „ 1·20; „ 1·15

The female is thus very decidedly smaller than the male.

Hab.—Obtained on Manbum Tilla, on Tenga Pani River, near Suddya at 800 ft. (M. J. Ogle).

This beautiful *Pomatorhinus*, which with the preceding species was discovered during the past cold season, in its very slender and narrow bill approaches the *Xiphorhamphus* form more than any other species of this group of Scimitar Babblers. In its coloration it reminds one of *Pom. ferruginosus*.*

The claw of the inner toe is smaller than the outer, and all the claws are rounded off at the tip so as to have a peculiarly blunt gouge-like appearance. J. A. S. B., XLVI., pt., 2, p. 43, 1877.

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magna, *Wardlaw Ramsay*.

neral colour above, dark bluish slate colour; a black stripe, arter of an inch broad, on either side of the head, running m the base of the bill over the eye to the shoulder; the upper part of the head and neck between these stripes smoky grey.

Wings of much the same colour as the back. Primaries and secondaries, dark brown; more or less edged on the outer web with bluish slate. The second, third, and fourth primaries are slightly margined with whitish on the outer web, and, with the fifth and sixth, are white at the base. Under surface of wing, greyish brown, jet-black under the shoulder.

Tail, with two central tail-feathers, concolorous with the back, remainder dark brown, almost black, outer pair broadly tipped with white on outer web, and margined with white on inner; next two broadly tipped with white on outer, and grey on inner web.

Under surface of body smoky grey, nearly white about throat and neck.

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* It is very much more closely allied to *P. ochraceiceps*, Wald, S. F., III., p. 282, from which, after a careful comparison of Suddya and Tenasserim Hill specimens, I decided *not* to separate it. All that can be said is that in typical specimens the upper surface is slightly more olivaceous, than that of *ochraceiceps*, and that the lower throat, breast and middle of abdomen are a faint rufous buff instead of pure white, and that the sides and flanks are more olivaceous and duskier. But the intermediate forms I have lead me to doubt the validity of the species.—Ed., S. F.

Lower tail-coverts, vent, and thighs, brilliant chestnut; each feather of the former broadly tipped with white.

Dimensions of dry skin (male) :—Length, 7·3 inches; wing, 4·5; tail, 2·7; bill from gape, 1·3; bill at front, 1·0; tarsus, ·95

This Nuthatch is remarkable for its great size as compared with other members of the genus.

In a small collection of birds made in January last in the country traversed by the recent Karennee boundary expedition.—P. Z. S., 1876, 677.

Limicola sibirica, *Dresser*.

"Having lately had occasion to examine a large series of specimens of our Broad-billed Sandpiper, *Limicola platyrhyncha* (Temm.) in order to work out that species for the 'Birds of Europe,' I found on examining examples from Siberia and China that they differ constantly from our European bird in summer dress; and as I find that there are in the series I have examined no intermediate specimens between these two forms, I think that the Eastern one, which has not hitherto been described, should be separated from our Western bird; I propose to call it *Limicola sibirica*. It differs in the summer plumage in having the feathers on the crown and entire upper parts very broadly margined with bright rufous, so as to give this colour extreme prominence, the upper parts being, in fact, similar in colour to those of *Tringa minuta* in fullest summer dress. In *Limicola platyrhyncha*, on the other hand, the general coloration of the upper parts is black, the margins to the feathers being narrow and white or ochreous white, and the crown is very dark. The under parts in *Limicola sibirica* are as in *Limicola platyrhyncha*, except that the throat is less spotted, the chin and upper throat being quite unspotted. In measurements I find no constant difference, as both species vary somewhat *inter se*; but, as a rule, the Eastern bird has the wing and tarsus rather longer than in *L. platyrhyncha*. In the winter plumage the two species cannot always with certainty be distinguished; but as a rule, the Eastern one appears to be a trifle paler than the European bird.

With two exceptions, all the specimens of *Limicola sibirica* I have examined were obtained in China by Mr. Swinhoe. The following is a full description of a specimen in full summer plumage from China :—

"*Capite et corpore supra pulchre ferrugineis, plumis medialiter nigris vix albido marginatis; scapularibus dorso concoloribus, alis sicut in* Limicola Platyrhyncha *pictis, sed pallidioribus et griseocentioribus; rectricibus centralibus nigris valde rufomargi-*

natis, reliquis griseis vix albo marginatis; fronte et stria superciliari albis; capitis et colli lateribus dorso concoloribus sed magis grises albo notatis; corpore subtus albo, mento immaculato, gutture nigrofusco et ferrugineo guttato.

"This species appears to breed in Northern Siberia, and to migrate Southward into China in the autumn. How far westward its range extends I cannot positively say; but there is a specimen in the Cambridge Museum, sent by Mr. Blyth and stated to have been obtained in "India," but no precise locality is given. All the other specimens from India and Baluchistan are referable to *L. platyrhyncha*. I may add that there is a specimen of *L. sibirica* in full summer dress, from Siberia, in the Cambridge Museum."—P. Z. S., 1876, 674.

Anthus Blakenstoni, *Swinhoe*. P. Z. S., 1863, 90.

A. neglectus, *Brooks*, Ibis, 1876, 501, 1877, 206.

"Bill, blackish brown on culmen and tip, light brown on remainder; legs, blackish brown, paler on tarsi; upper parts, yellowish brown, grey on the nape; crown and back centres of feathers, deep brown; lores, eyebrow, and chin, white; under parts, cream white, spotted on the breast streaked on the flanks with brown; axillaries, pure white; gs, brown; feathers edged paler; coverts and tertiaries, oadly edged and tipped with cream white, forming a double bar across the wing; tail, brown; the central feathers, yellowish brown, edged paler; the outer lateral tail-feathers, on the entire outer web, and great part of inner near the apex, white; second lateral edged exteriorly and largely tipped with white.

"Length, 5; wing, 3·7; tail, 2·7; tarsi, ·85."—*Swinhoe*. P. Z. S., 1863, 90.

"Under the head of *Anthus spinoletta* Mr. Dresser, in 'The Birds of Europe,' refers to a similar but smaller Indian Pipit, to which I gave the name of *A. neglectus*. No description was published, as there was some doubt at the time as to it being a good species. I have since examined many *Anthus spinoletta* myself; and the small Indian bird cannot be considered identical. It differs as follows:—(1) smaller size; (2) shorter wing; (3) shorter and more slender bill. In summer plumage the birds are very similar; but in winter dress the breast spots are not large and cloudy as in *A. spinoletta*, but small and much more distinct. Another important distinction is the well striated back of *A. neglectus*. I have the total length in the flesh of only four examples. They were all exactly six inches. The bill was dark brown, and very pale brown at base of lower mandible; irides very dark, almost bl k; legs and feet brown; soles of feet yellow. In general

coloration it resembles *A. arboreus*, but is considerably paler and greyer; the back striation is of similar character; the breast spots, however, are not distinct, as in *A. pratensis*, but somewhat clouded and brown in colour; they are also much smaller and more distinct than the spots of either *A. obscurus* or *A. spinoletta*. The different character of the breast-spots alone serves to separate this Water-Pipit from its affined species; the wings and tail are coloured like those of *A. spinoletta*. The summer plumage is also similar, the breast-spots being replaced by a uniform dull reddish buff. The wing lining and axillaries are white.

"This Pipit frequents extensive swamps and lakes (jheels, as they are called) in the northern parts of India during the cold season; and in the spring it takes its departure for the north. It is extremely shy and difficult of approach. I have generally found it in company with *Anthus rosaceus*. I have not, however, always found it at "jheels" frequented by this latter species, which is a far more abundant bird. Its call and alarm-notes are like those of *Anthus pratensis*. The following are dimensions of some examples I have by me:—

No.	Sex.	Wing.	Tail.	Bill at front.	Tarsus
1	♂	3·22	2·6	·45	·88
2	♂	3·4	2·63	·45	·88
3	♀	3·15	2·57	·45	·87
4	♀	3·33	2·6	·46	·83
5	♀	3·25	2·55	·46	·88
6	♀	3·2	2·65	·45	·88
7	♀	3·2	2·55	·43	·87
8	♀	3·28	2·5	·45	·85
9	♀	3·23	2·65	·45	·86
10	♀	3·12	2·45	·43	·87
11	♀	3·3	2·52	·45	·88
12	♀	3·1	2·5	·45	·83
13	♀	3·27	2·6	·46	·85

"I have seen other males in addition to the two noted above. A glance at the above dimensions shows this Pipit to be very different from those of the large *A. spinoletta*.—Brooks, *Ibis*, 1876, 501.

"My *Anthus neglectus* is, I find by comparison, identical with Mr. Swinhoe's *A. Blackenstoni*.

His description is correct as far as colour of plumage is concerned; but the bird's legs and feet are conspicuously lighter in colour than those of *Anthus spinoletta*. My term of "brown" is better than Mr. Swinhoe's of "blackish brown." The legs and feet of Mr. Swinhoe's examples, however, may have dried rather dark. I noted the colour from the fresh birds. The total length given by Mr. Swinhoe is clearly wrong; so also with regard to length of wing. I have shot about forty examples; and the greatest total length observed was 6·3; the longest wing, 3·4; longest tail, 2·65."—*Brooks*, Ibis, 1877, 206.

Notes.

In continuation of my paper IV., 279, I have now to record two more species from the Andamans, *viz*:—

854.—Ch[illegible] *cinerea*, *Blyth.*

925.—H[illegible] *egretta* (*Alba* apud *Jerd.*)

Both were obtained by General Stewart in the neighbourhood of Port B[illegible] are contained in his last collection, which, though [illegible] three years ago, has, owing to the case having been [illegible] Calcutta, only just reached me. This collection is a very [illegible] but contains no other novelties (except indeed one [illegible] of *Stèrna anæthæta,* which though included in my list, [illegible], we had failed to procure) so that we may conclude that we have pretty well exhausted the birds of the South Andaman at any rate.

A thoroughly reliable correspondent writes :—"The circumstance you allude to occurred at this station in 1860, or 1861. The native officer asked me for permission to kill a Kite in the lines. This being rather an unusual request, especially for a Hindoo, I asked him why he wished to destroy the bird. He said the Kite had a nest in his Company lines from which the son of a Sepoy, whose house was near, had taken the young birds. That this had so exasperated the parent bird that whenever the lad moved out of his house it swooped down and attacked him. I had the lad brought to me and his head and arms gave ample evidence of the maltreatment he had received. His story was fully corroborated by men who had seen the Kite attack him. You can make what use you like of this, but please do not give my name, as I do not like appearing in print."

Referring to what I said, *ante* p. 97, about the dimensions of *Hierococcyx nisicolor*, I have now to note that the wings of six more specimens of this species recently received measured :—

1	Adult	6·83
2	Nearly adult	6·9
3	Juv.	6·7
4	Juv.	7·0
5	Juv.	6·9

In continuation of my remarks on *Buteo plumipes*, S. F. IV., p. 361, I am now able to furnish similar measurements to those

therein given of 13 more specimens of this species which have been added to my museum since that paper was written, ten in the *japonicus* or variegated plumage and three in the uniform fuliginous plumage.

More than half of these specimens are sexed, and the sexing confirms our previous suppositions :—

	No.	Sex.	Length of *wing.	Bare portion of tarsus†	Locality.
Variable plumage (*B. japonicus.*)	1	♀	15·9	1 35	Sikhim
	2	♂	14·6	1·34	Native Sikhim
	3	♂	14·5	1·45	„
	4	♂	14·6	1·47	„
	5	?	15·4	1·1	„
	6	?	15·0	1·25	„
	7	♂	14·75	1·4	Sikhim
	8	?	14·75	1·3	Native Sikhim
	9	♀	15·9	1·25	„
	10	?	14·75	1·25	Near Darjeel
Uniform fuliginous plumage (*B. plumipes*)	11	♀	15·85	1·25	Sikhim
	12	♂	14·8	1·3	Native Sikhim
	13	♂	14·5	1·05	Thibet, North of Native Sikhim.

Amongst these specimens was a 14th which, to a casual observer, was *precisely similar*, but a single glance at the long thighs and tarsi the latter bare for 2·0, showed that small as the bird *looked*, it was really *ferox*, and the wing, 16·9, and the much stronger bill and feet confirmed the fact.

On a former occasion I pointed out (III., 299-300) the claims of *Pachyglossa* to be considered a distinct genus alike from *Dicæum*, *Prionochilus* and *Piprisoma* on account of its differently-shaped bill. I am not aware whether the female of Pachyglossa melanoxantha has yet been described. I myself have only recently seen one for the first time procured (as most Sikhim novelties and rarities are) by Mr. Mandelli.

The coloration of this female, while indicating the affinity of the genus with all the three above named, confirms in my opinion the view which I formerly took of its distinctness.

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* Wing pressed flat on a table and measured on inside straight from carpal joint to end of longest primary.

† Measured from just within the points of the tarsal plumes on front of tarsus to the articulation of the mid toe and tarsus.

The following are the dimensions (taken from the skin) and a description of the female *P. melanoxantha* :—

Length, 3·5 ; wing, 2·55 ; tail, 1·5 ; tarsus, 0·5 ; bill, straight from forehead to point, 0·43.

The entire upper surface a very dusky olive green, slightly clearer on rump and upper tail-coverts ; wings and tail hair brown, darkest on quills and tail ; most of the larger and median coverts, secondaries, and tertiaries very narrowly and inconspicuously margined on the outer webs with yellowish olive ; two outer tail-feathers on either side with a white patch on the inner webs near the tips ; lores dusky ; a broad irregular stripe covering chin, middle of throat, and middle of breast dull, *slightly* yellowish or fulvous white ; sides of throat, cheeks, ear-coverts and sides of head, the same colour as the back, but rather lighter ; sides of breast similar but greyer ; sides and flanks similar, but the former yellower, the latter greener ; middle of abdomen, vent, lower tail-coverts dull pale yellow ; axillaries and wing lining, white ; the lining [illegible] mottled with greyish brown.

[illegible]rrow nearly white line from middle of gonys to gape ; [illegible]andible above this and upper mandible blackish ; lower [illegible]le below this horny brown ; legs and feet black. [illegible] colours are taken from the dry specimen, and may not [illegible]rrect).

Mr. Blanford (S. F., III, 358) has already, in these pages, described the adult male of *Hypocolius ampelinus* from the Hills, dividing Sindh from Khelat.

I will now describe a young bird of the same species, shot at Nal in Khelat, at an elevation of 4,020 feet, on the 26th April.

The specimen has been carbolized.

Length, 9·0 ; wing, 3·8 ; tail, 4·2 ; tarsus, 0·95 ; mid toe and claw, 1·0 ; closed wing falls short of end of tail by 2·8 ; bill from forehead, 0·85 ; from edge of feathers, 0·6 ; outer tail feathers, 0·3 shorter than longest.

First primary excessively narrow, exposed portion about 0·58 ; third primary longest ; second and fourth equal, each 0·05 shorter than third ; fifth and succeeding primaries, each about 0·1 shorter than the preceding one.

The entire upper-surface, a pale greyish earth brown, a shade darker on the crown, preceptibly paler and clearer on upper tail-coverts ; terminal half inch of tail-feathers darker, a sort of hair brown ; inner webs of quills, a pale hair brown ; the primaries near their tips, paler, margined for about half an inch in length on outer webs, so as to produce the effect of a pale subterminal band in the closed wing.

The entire lower parts, including wing lining, lower tail-coverts, &c., pale greyish isabelline.

Bill, blackish horny; legs and feet, yellowish fleshy; claws, pale horny brown.

I HOPE NEXT YEAR, with Dr. Duke's kind assistance, to be able to submit a tolerably complete list of the birds of the dominions of His Highness the Khan of Khelat.

At present including all the species that Mr. Blanford, Captain Butler and myself obtained on the Mekran Coast and along the Western frontier of Beloochistan, and those obtained in the low lands (the Kutchee) and the high lands of Khelat, Quetta, &c., by Major Sandeman, Dr. Duke, &c., I can only number 170 species.

Of these the only ones requiring early notice are:—

(1). *Hypocolius ampelinus*, which I have already just noticed.

(2). *Sitta neumayeri*.—These are typical and identical with specimens from Macedon, and are not the smaller Persian [illegible] described by Blanford, *Ibis*, 1873, p. 87, under the n[illegible] *rupicola*. See, also, Blanf. Zoo. Pers., 225, pl. XV. f. 2.

(3). *Carine bactriana*, Hutton. The Highlands of [illegible] are a continuation and zoologically form a part of tho[illegible] Afghanistan. The small owl of Quetta, &c., is therefore, [illegible] questionably, *bactriana* of Hutton. This owl has the feet fully feathered—it is apparently, therefore, identical with *plumipes* of Swinhoe, P. Z. S., 1870, 448, and will supersede that and all other names for that species.—(See also Sharpe, Cat. II., 137).

SINCE MY paper on the Indian *Cisticolæ*, (*ante* p. 90), in which I suggested the identity of *homalura*, *melanocephala* and *Tytleri*, was in type, I have received two more of *melanocephala* and six of *Tytleri*, all killed in the same grass patch near Suddya in Assam, on the same and two or three successive days.

I remark first that two of the specimens of *Tytleri* and one of *melanocephalus* have the tails precisely as described by Blyth in the case of *homalura*.

Blyth, however, says that the bill in *homalura* is stouter than in *cursitans*. Well, the bills vary in both species, and you may easily pick out *a melanocephalus*, with a bill stouter than that of *some cursitans*, but taking five or six of each species I cannot see that the bills differ at all.

With this sole exception, *melanocephala*, or rather some *melanocephalas*, agree absolutely with Blyth's description of

omalura, and the difficulty of the tail being removed, I personally entertain little doubt that the two names represent the same species.

Then I observe that structurally, there is, so far as bills, proportions of primaries, tarsi and feet are concerned, not the slightest difference between *Tytleri* and *melanocephala*. As regards length of wings, I think that those of *Tytleri* run a trifle longer. Take the following dimensions :—

C. melanocephala.—Wings, 1·75 ; 1·73 ; 1·68 ; 1·83 ; 1·75.

C. Tytleri— „ —1·8 ; 1·8 ; 1·81 ; 1·8 ; 1·77 ; 1·8.

But now a curious fact has to be noticed ; clearly these two forms are not seasonal stages of the same birds, the great majority of my specimens having been shot at the same time.

Still their absolute structural identity and both having almost always occurred in the same places from Dacca to Suddya, strengthens the suspicion that, following Dr. Jerdon, I expressed in my paper already referred to, and the noteworthy point is that all *my Tytleri* are males, and both my sexed specimens of *melanocephala* are females.

, is it possible that the two forms represent the two sexes and the same species ?

ust leave this point to be elucidated by further investiga-

may add that I have recently received a specimen of *C. rythrocephala*, (which is the second I have seen) from the Revd. Mr. Fairbank, killed by him at an elevation of 6,000 feet on Mount Nebo, in the Palnis, where he tells me that he saw two other specimens of this same species. The specimen is a male, and has the wing, 1·98. It agrees in plumage entirely with my other specimen fully described, *ante* p. 94.

Mr. John Darling, Junr., has just sent me a specimen of *Vivia innominata*, Burton, (Jerd. B. of I., I., 300) shot and skinned by himself on the 8th of the present month, (July) in the Wynaad.

This species was formerly considered exclusively Himalayan, and Dr. Jerdon remarks :—

"This bird is found throughout the Himalayas and in no other locality that I am aware of."

Perè David, however, obtained it in Kokonor ; we have obtained it from the Tenasserim and Khasia Hills, and here we find it in the Wynaad, a fertile valley elevated about 2,500 feet above the sea, and lying between the Nilgheris and those portions of the Western Ghats, overlooking Cannanore, Calicut, &c.

Letters to the Editor.

Sir,

I should be glad to know whether the Green Jay of Jerdon, *Cissa sinensis*, known here as the Sirgoom, is supposed to be in the habit of killing snakes. I did not know it myself till the other day, when I witnessed an occurrence which may be of interest to you. I was walking along a road with jungle on both sides, and my attention was attracted by the cries of a bird ahead of me. I looked and observed one of these Green Jays screaming and pecking at a large snake in the middle of the road, which was trying to make its escape, but whichever way it turned the bird met it, striking with its wings and beak; at last the snake lay quite still in the middle of the road, when the bird perched on its neck and commenced digging its beak into the snake's head. I then walked up closer, and the bird flew into a bush just beside me, where it remained screaming. As soon as I approached the snake it raised itself in a threatening attitude, and seeing it was dead I withdrew again, and as soon as I was a few distant, the Jay flew out and attacked the snake again soon as the bird came, the snake seemed to reconcile its its fate, and after a few feeble attempts to escape, again still, on which the bird again perched on its neck, and continued pecking away at the top of the snake's head till it was dead. In the end, the bird dragged the body of the snake away into the jungle. I went and examined the snake and found the top of the head completely broken. While I was examining the body of the snake the bird remained in the jungle at hand, but did not continue screaming as it did the first time, I scared it away. I showed the snake to a man who was passing, and he knew the name of the reptile and said it was poisonous. The snake was about three feet long. I may add that a lot of cattle coming along the road, the opposite way to which I was going, had all stopped, and when I got there were clustered together in the road looking on. The villagers asserted that the Jay would eat the snake, and from the bird dragging the snake off the road, this seems likely enough. How the combat began I don't know, but it would seem as if the Jay attacked the snake seeing it cross the open. I was quite unaware of any such propensities in this bird, and have narrated the incident to you in case it should be of interest.

Can you tell me if there are any grounds for supposing that either Snipe or Woodcock breed in this country? I have shot

Snipe, as late as 10th April, in Dinajpur, not a stray one but several in one nullah, and I flushed a Woodcock here the other day, 14th March: the season for migration having passed these birds must remain in this country for the rains, and certainly in the case of Snipe where they are to be found several together I think they breed here. Has the question ever been mooted?

E. Lowis.

Chittagong,
20th March 1877.

[I have known the Green Jay (*Cissa speciosa*) to kill and eat lizards, but never before have had any record of its actually killing a snake. But most of these corvine birds will kill and eat any moderate-sized reptiles and any small mammals, or even fish I believe, that they can seize.

As to Woodcocks, they certainly breed freely in the Higher Himalayahs; they do not breed in the Nilghiris, where however they are common in the cold season. Whether they ever breed in the Chittagong or Tippera, or Naga, Garrow or Khasia Hills, I do not know for certain, but I greatly doubt it.

I should hardly consider the season of migration for Woodcock to close before the 15th April.

The Pin-tail Snipe may breed in Eastern Bengal and the Burmese countries. I have no certainty of the fact, but I believe it to be the case.

As for the Common Snipe, it breeds sparingly in the Himalayahs, as for instance in Cashmere; but I have never had the slightest reason to believe that this species breeds any where in India, except in these hills. Some birds of this species are very late in leaving us. In North-Western India, I have killed them in the plains as late as nearly, if not quite, I have no notes to refer to at hand, the end of April.—Ed., S. F.]

Sir,

Since I addressed* you on the subject of Captain Legge's Ceylon paper, another instance of the capture of *Phodilus assimilis*, Hume, has come under my notice.

Mr. Weldon of Dickoya, to whom this new specimen belongs, remarks *in epist.*: "This bird was caught by a cooly in a tree in the day time on my estate, and is the second of the kind he has caught here. It was put on a perch in a dark room, but refused to eat, and died after two or three days' confinement."

* *Vide* Supra, p. 201.—Ed., S. F.

The following is a description and measurements of the above taken while in the flesh :—

♀ adult, Dickoya Estate, Dickoya, Ceylon, July 1877.

Length, 11½ inches; wing, 8½; expanse, 27½; tail, 3½; mid-toe and claw, 1½; tarsus, 2; feathered to base of toes which are covered with a few diffuse, white bristly hairs.

Iris, dark brown; bill, greenish white, with a dash of dark brown on edge of upper mandible, and dark spot on the nostrils.

Feet, pale whitish green. *Claws*, pale ash; ridges of the scutæ of the toes of a darker green than the prevailing color.

Face and *forehead*, dull white, with the exception of a dark brown band or disc surrounding the eye. A white band extends from ear to ear under the chin. Outside of this a band of brown completes the face.

Occiput and nape, dark chestnut, with a prominent dull white spot on back of head; all the feathers having a terminal black spot. The remainder of the upper parts or entire mantle, of a light pale fulvous chestnut, the feathers being spotted, some with one black spot, others with several like, and white spots along the shafts. Tail, a lightly darker hue, with 9 dark brown bands. The interscapular region is also of a slightly darker hue than the rest of the mouth.

Outer margin of all the wing-feathers light chestnut; inner web, greyish ash with 10 dark brown or black transverse bands. False wing-feathers, white with black bands, chest and abdomen and entire under parts, fulvous white, with small dark brown or black spots. Tarsus without spots.

This is the fourth specimen of *phodilus* (adult), so far as I know, recorded from Ceylon, and these have been found in the localities widely apart, *viz.*, Ratotta, Kandy, Dickoya and Rakwana. In Mr. Hector's case the Paunt was captured with three young ones in the nest.

A. W. White.

STRAY FEATHERS.

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REPRINT.

RULES

FOR

ZOOLOGICAL NOMENCLATURE

BY THE LATE

HUGH E. STRICKLAND, M.A., F.R.S.

AUTHORISED BY SECTION D

OF

BRITISH ASSOCIATION

AT MANCHESTER, 1842.

REFORM of the Nomenclature of Zoology was a subject which occupied much of the time of the late Hugh E. Strickland.* It was his object that this reform should be brought forward under the auspices of the British Association, and at a meeting of the Council of that body, held in London upon 11th February 1842, it was resolved—"That with a view of securing attention to the following important subject, a committee, consisting of Mr. C. Darwin, Professor Henslow, Rev. L. Jenyns, Mr. W. Ogilby, Mr. J. Phillips, Dr. Richardson, Mr. H. E. Strickland (reporter), Mr. J. O. Westwood, be appointed, to consider of the rules by which the Nomenclature of Zoology

* See Memoirs of Hugh Edwin Strickland, by Sir W. Jardine, Bart., p. clxxv.

may be established on a uniform and permanent basis; the report to be presented to the Zoological Section, and submitted to its committee at the Manchester meeting."*

This committee met at various times in London, and the following gentlemen were added to it, and assisted in its labours: W. J. Broderip, Professor Owen, W. E. Shuckard, G. R. Waterhouse, and W. Yarrell. An outline of the proposed code of rules was drawn up and circulated, and many valuable suggestions were received from eminent zoologists at home and abroad. The "plan" was further considered by the committee during the meeting at Manchester, "and the committee, having thus given their best endeavours to maturing the plan, beg now to submit it to the approval of the British Association under the title of—'Series of Propositions for rendering the Nomenclature of Zoology uniform and permanent.'"†

The propositions were printed in the Reports of the British Association, and a grant of money was voted to print copies for circulation. The rules thus laid down were very generally adopted by zoologists, both in this country and abroad; but having been only printed in the volumes of the British Association, "Annals of Natural History," and "Philosophical Magazine,"‡ or depending on private circulation only, it was deemed advisable that greater publicity should be given to them, and at the meeting at Oxford in 1860 it was resolved, that "The surviving members of the committee appointed in 1842—viz., Mr. C. Darwin, Rev. Professor Henslow, Rev. L. Jenyns, Mr. W. Ogilby, Professor Phillips, Sir John Richardson, Mr. J. O. Westwood, Professor Owen, Mr. W. E. Shuckard, and Mr. G. Waterhouse—for the purpose of preparing rules for the establishment of a uniform Zoological Nomenclature, be reappointed, with Sir W. Jardine, Bart., and Mr. P. L. Sclater. That Sir W. Jardine be the Secretary, and that the sum of £10 be placed at their disposal for the purpose of revising and reprinting the rules."§

From the difficulty of bringing such a committee together, nothing was done since the time of its appointment; but the resolution and a grant of money were again renewed at the late

* Report of Twelfth Meeting of British Association, held at Manchester, June 1842, p. 105.

† Report of Twelfth Meeting, 1842, p. 106.

‡ At the Scientific Congress held in 1843 at Padua, the late Prince C. L. Buonaparte submitted to the meeting an Italian translation of the "British Association's Code of Rules," which was generally approved of. A French translation of the report appeared in the scientific journal "L'Institut," in which paper much stress was laid on the importance of the measure. A review of it was also printed in the "American Journal of Science."

§ Reports of the British Association, held at Oxford, 1860, p. xlvi.

meeting in Newcastle, as follows :—That Sir W. Jardine, A. R. Wallace, J. E. Gray, C. C. Babington, Dr. Francis, P. L. Sclater, C. Spence Bate, P. P. Carpenter, Dr. J. D. Hooker, Professor Balfour, H. T. Stainton, J. Gwyn Jeffreys, A. Newton, Professor T. H. Huxley, Professor Allman, and G. Bentham, be a committee, with power to add to their number, to report on the changes which they may consider it desirable to make, *if any*, in the rules of nomenclature drawn up at the instance of the Association by Mr. Strickland and others, with power to reprint these rules and to correspond with foreign naturalists and others on the best means of insuring their general adoption.—£15."

Accordingly the rules, as originally approved of, are now reprinted, and zoologists are requested to examine them carefully, and to communicate any suggestions for alteration or improvement on or before 1st June 1864, to *Sir William Jardine, Bart., Jardine Hall, by Lockerby, N. B.*, who will consult with the members of the committee, and report upon the subject at the next meeting of the British Association appointed to be held at Bath.

JARDINE HALL, *8th Sept.* 1863.

Series of Propositions for rendering the Nomenclature of Zoology uniform and permanent.

[Reprinted from the Report of the British Association for 1842.]

PREFACE.

All persons who are conversant with the present state of Zoology must be aware of the great detriment which the science sustains from the vagueness and uncertainty of its nomenclature. We do not here refer to those diversities of language which arise from the various methods of classification adopted by different authors, and which are unavoidable in the present state of our knowledge. So long as naturalists differ in the views which they are disposed to take of the natural affinities of animals there will always be diversities of classification, and the only way to arrive at the true system of nature is to allow perfect liberty to systematists in this respect. But the evil complained of is of a different character. It consists in this, that when naturalists *are* agreed as to the characters and limits of an individual group or species, they still disagree in the appellations by which they distinguish it. A genus is often designated by three or four, and a species by twice that number of precisely equivalent synonyms; and in the absence of any rule on the subject, the naturalist is wholly at a loss what nomenclature to adopt. The consequence is, that the so-called commonwealth of science is becoming daily

divided into independent states, kept asunder by diversities of language as well as by geographical limits. If an English zoologist, for example, visits the museums and converses with the professors of France, he finds that their *scientific* language is almost as foreign to him as their *vernacular*. Almost every specimen which he examines is labelled by a title which is unknown to him, and he feels that nothing short of a continued residence in that country can make him conversant with her science. If he proceeds thence to Germany or Russia, he is again at a loss; bewildered everywhere amidst the confusion of nomenclature, he returns in despair to his own country and to the museums and books to which he is accustomed.

If these diversities of scientific language were as deeply rooted as the vernacular tongue of each country, it would of course be hopeless to think of remedying them; but happily this is not the case. The language of science is in the mouths of comparatively few, and these few, though scattered over distant lands, are in habits of frequent and friendly intercourse with each other. All that is wanted, then, is, that some plain and simple regulations, founded on justice and sound reason, should be drawn up by a competent body of persons, and then be extensively distributed throughout the zoological world.

The undivided attention of chemists, of astronomers, of anatomists, of mineralogists, has been of late years devoted to fixing their respective languages on a sound basis. Why, then, do zoologists hesitate in performing the same duty, at a time, too, when all acknowledge the evils of the present anarchical state of their science?

It is needless to inquire far into the causes of the present confusion of zoological nomenclature. It is in great measure the result of the same branch of science having been followed in distant countries by persons who were either unavoidably ignorant of each other's labours, or who neglected to inform themselves sufficiently of the state of the science in other regions. And when we remark the great obstacles which now exist to the circulation of books beyond the conventional limits of the states in which they happen to be published, it must be admitted that this ignorance of the writings of others, however unfortunate, is yet in great measure pardonable. But there is another source for this evil, which is far less excusable,—the practice of gratifying individual vanity by attempting, on the most frivolous pretexts to cancel the terms established by original discoverers, and to substitute a new and unauthorised nomenclature in their place. One author lays down, as a rule, that no specific names should be derived from geographical sources, and unhesitatingly proceeds to insert words of his own

in all such cases; another declares war against names of exotic origin, foreign to the Greek and Latin; a third excommunicates all words which exceed a certain number of syllables; a fourth cancels all names which are complimentary of individuals, and so on, till universality and permanence, the two great essentials of scientific language, are utterly destroyed.

It is surely, then, an object well worthy the attention of the Zoological Section of the British Association for the Advancement of Science to devise some means which may lessen the extent of this evil, if not wholly put an end to it. The best method of making the attempt seems to be to entrust to a carefully-selected committee the preparation of a series of rules, the adoption of which must be left to the sound sense of naturalists in general. By emanating from the British Association, it is hoped that the proposed rules will be invested with an authority which no individual zoologist, however eminent, could confer on them. The world of Science is no longer a monarchy, obedient to the ordinances, however just, of an Aristotle or a Linnæus. She has now assumed the form of a republic; and, although this revolution may have increased the vigour and zeal of her followers, yet it has destroyed much of her former order and regularity of government. The latter can only be restored by framing such laws as shall be based in reason, and sanctioned by the approval of men of science; and it is to the preparation of these laws that the Zoological Section of the Association have been invited to give their aid.

In venturing to propose these rules for the guidance of all classes of zoologists in all countries, we disclaim any intention of dictating to men of science the course which they may see fit to pursue. It must of course be always at the option of authors to adhere to or depart from these principles; but we offer them to the candid consideration of zoologists, in the hope that they may lead to sufficient uniformity of method in future to rescue the science from becoming a mere chaos of words.

We now proceed to develope the details of our plan; and, in order to make the reasons by which we are guided apparent to naturalists at large, it will be requisite to append to each proposition a short explanation of the circumstances which call for it.

Among the numerous rules for nomenclature which have been proposed by naturalists, there are many which, though excellent in themselves, it is not now desirable to enforce.* The cases in which those rules have been overlooked or departed

* See especially the admirable code proposed in the "Philosophia Botanica" of Linnæus. If zoologists had paid more attention to the principles of that Code, the present attempt at reform would perhaps have been unnecessary.

from are so numerous and of such long standing, that to carry these regulations into effect would undermine the edifice of zoological nomenclature. But while we do not adopt these propositions as authoritative laws, they may still be consulted with advantage in making such additions to the language of zoology as are required by the progress of the science. By adhering to sound principles of philology we may avoid errors in future, even when it is too late to remedy the past; and the language of science will thus eventually assume an aspect of more classic purity than it now presents.

Our subject hence divides itself into two parts—the first consisting of *Rules* for the rectification of the present zoological nomenclature, and the second of *Recommendations* for the improvement of zoological nomenclature in future.

PART I.

RULES FOR RECTIFYING THE PRESENT NOMENCLATURE.

[*Limitation of the Plan to Systematic Nomenclature.*]

In proposing a measure for the establishment of a permanent and universal zoological nomenclature, it must be premised that we refer solely to the Latin or systematic language of zoology. We have nothing to do with vernacular appellations. One great cause of the neglect and corruption which prevails in the scientific nomenclature of zoology, has been the frequent and often exclusive use of vernacular names in lieu of the Latin binomial designations, which form the only legitimate language of systematic zoology. Let us then endeavour to render perfect the Latin or Linnæan method of nomenclature, which, being far removed from the scope of national vanities and modern antipathies, holds out the only hope of introducing into zoology that grand desideratum, an universal language.

[*Law of Priority the only effectual and just one.*]

It being admitted on all hands that words are only the conventional signs of ideas, it is evident that language can only attain its end effectually by being permanently established and generally recognised. This consideration ought, it would seem, to have checked those who are continually attempting to subvert the established language of zoology by substituting terms of their own coinage. But, forgetting the true nature of language, they persist in confounding the *name* of a species or group with its *definition*; and because the former often falls short of the fulness of expression found in the latter, they cancel it without hesita-

tion, and introduce some new term which appears to them more characteristic, but which is utterly unknown to the science, and is therefore devoid of all authority.* If these persons were to object to such names of men as *Long*, *Little*, *Armstrong*, *Golightly*, &c., in cases where they fail to apply to the individuals who bear them, or should complain of the names *Gough*, *Lawrence*, or *Harvey*, that they were devoid of meaning, and should hence propose to change them for more characteristic appellations, they would not act more unphilosophically or inconsiderately than they do in the case before us; for, in truth, it matters not in the least by what conventional sound we agree to designate an individual object, provided the sign to be employed be stamped with such an authority as will suffice to make it pass current. Now, in zoology, no one person can subsequently claim an authority equal to that possessed by the person who is the first to define a new genus or describe a new species; and hence it is that the name originally given, even though it may be inferior in point of elegance or expressiveness to those subsequently proposed, ought, as a general principle, to be permanently retained. To this consideration we ought to add the injustice of erasing the name originally selected by the person to whose labours we owe our first knowledge of the object; and we should reflect how much the permission of such a practice opens a door to obscure pretenders for dragging themselves into notice at the expense of original observers. Neither can an author be permitted to alter a name which he himself has once published, except in accordance with fixed and equitable laws. It is well observed by Decandolle, "L'auteur même qui a le premier établi un nom n'a pas plus qu'un autre le droit de le changer pour simple cause d'impropriété. La priorité en effet est un terme fixe, positif, qui n'admet rien, ni d'arbitraire, ni de partial."

For these reasons, we have no hesitation in adopting as our fundamental maxim, the "law of priority," *viz.*,

§ 1. The name originally given by the founder of a group or the describer of a species should be permanently retained, to the exclusion of all subsequent synonyms (with the exceptions about to be noticed.)

Having laid down this principle, we must next inquire into the limitations which are found necessary in carrying it into practice.

* Linnæus says on this subject, "Abstinendum ab hac innovatione quæ nunquam cessaret, quin indies aptiora detegerentur ad infinitum."

[*Not to extend to authors older than Linnæus.*]

As our subject matter is strictly confined to the *binomial system of nomenclature*, or that which indicates species by means of two Latin words, the one generic, the other specific, and as this invaluable method originated solely with Linnæus, it is clear that, as far as species are concerned, we ought not to attempt to carry back the principle of priority beyond the date of the 12th edition of the "Systema Naturæ." Previous to that period, naturalists were wont to indicate species not by a *name* comprised in one word, but by a *definition* which occupied a sentence, the extreme verbosity of which method was productive of great inconvenience. It is true that one word sometimes sufficed for the definition of a species, but these rare cases were only binomial by accident and not by principle, and ought not therefore in any instance to supersede the binomial designations imposed by Linnæus.

The same reasons apply also to generic names. Linnæus was the first to attach a definite value to genera, and to give them a systematic character by means of exact definitions; and therefore, although the *names* used by previous authors may often be applied with propriety to modern genera, yet in such cases they acquire a new meaning, and should be quoted on the authority of the first person who used them in this secondary sense. It is true that several of the old authors made occasional approaches to the Linnæan exactness of generic definition, but still these were but partial attempts; and it is certain that if in our rectification of the binomial nomenclature we once trace back our authorities into the obscurity which preceded the epoch of its foundation, we shall find no resting-place or fixed boundary for our researches. The nomenclature of Ray is chiefly derived from that of Gesner and Aldrovandus, and from these authors we might proceed backward to Ælian, Pliny, and Aristotle, till our zoological studies would be frittered away amid the refinements of classical learning.*

We therefore recommend the adoption of the following proposition :—

§ 2. The binomial nomenclature having originated with Linnæus, the law of priority, in respect of that nomenclature, is not to extend to the writings of antecedent authors.

[It should be here explained that Brisson, who was a contemporary of Linnæus and acquainted with the 'Systema

* "Quis longo ævo recepta vocabula commutaret hodie cum patrum?"—*Linnæus.*

Naturæ,' defined and published certain genera of birds which *additional* to those in the twelfth edition of Linnæus's , and which are, therefore, of perfectly good authority. But Brisson still adhered to the old mode of designating species by a sentence instead of a word; and, therefore, while we retain his defined genera, we do not extend the same indulgence to the titles of his species, even when the latter are accidentally binomial in form. For instance, the *Perdix rubra* of Brisson is the *Tetrao rufus* of Linnæus; therefore, as we in this case retain the generic name of Brisson and the specific name of Linnæus, the correct title of the species would be *Perdix rufa*.]

[*Generic names not be cancelled in subsequent subdivisions.*]

As the number of known species which form the groundwork of zoological science is always increasing, and our knowledge of their structure becomes more complete, fresh generalizations continually occur to the naturalist, and the number of genera and other groups requiring appellations is ever becoming more extensive. It thus becomes necessary to subdivide the contents of old groups, and to make their definitions continually more restricted. In carrying out this process, it is an act of justice to the original author that this generic name should never be lost sight of; and it is no less essential to the welfare of the science, that all which is sound in its nomenclature should remain unaltered amid the additions which are continually being made to it. On this ground we recommend the adoption of the following rule:—

§ 3. A generic name, when once established, should never be cancelled in any subsequent subdivision of the group, but retained in a restricted sense for one of the constituent portions.

[*Generic names to be retained for the typical portion of the old genus.*]

When a genus is subdivided into other genera, the original name should be retained for that portion of it which exhibits in the greatest degree its essential characters as at first defined. Authors frequently indicate this by selecting some one species as a fixed point of reference, which they term the "type of the genus." When they omit doing so, it may still in many cases be correctly inferred that the *first* species mentioned on their list, if found accurately to agree with their definition, was regarded by them as the type. A specific name, or its synonyms, will also often serve to point out the particular

species which by implication must be regarded as the original type of a genus. In such cases we are justified in restoring the name of the old genus to its typical signification, when later authors have done otherwise. We submit therefore that

§ 4. The generic name should always be retained for that portion of the original genus which was considered typical by the author.

Example.—The genus *Picumnus* was established by Temminck, and included two groups, one with four toes, the other with three, the *former* of which was regarded by the author as typical. Swainson, however, in raising these groups at a later period to the rank of genera, gave a new name, *Asthenurus* to the *former* group, and retained *Picumnus* for the *latter*. In this case we have no choice but to restore the name *Picumnus*, Temm., to its correct sense, cancelling the name *Asthenurus*, Sw., and imposing a new name on the 3-toed group which Swainson had called *Picumnus*.

[*When no type is indicated, then the original name is to be kept for that subsequent subdivision which* first *received it.*]

Our next proposition seems to require no explanation:—

§ 5. When the evidence as to the original type of a genus is not perfectly clear and indisputable, then the person who first subdivides the genus may affix the original name to any portion of it at his discretion, and no later author has a right to transfer that name to any other part of the original genus.

[*A later name of the same extent as an earlier to be wholly cancelled.*

When an author infringes the law of priority by giving a new name to a genus which has been properly defined and named already, the only penalty which can be attached to this act of negligence or injustice, is to expel the name so introduced from the pale of the science. It is not right, then, in such cases to restrict the meaning of the later name so that it may stand side by side with the earlier one, as has sometimes been done. For instance, the genus *Monaulus*, Vieill., 1816, is a precise equivalent to *Lophophorus*, Temm., 1813, both authors having adopted the same species as their type, and therefore,

when the latter genus came in the course of time to be divided into two, it was incorrect to give the condemned name *Monaulus* to one of the portions. To state this succinctly,

§ 6. When two authors define and name the same genus, *both making it exactly of the same extent*, the later name should be cancelled *in toto*, and not retained in a modified sense.*

This rule admits of the following exception :—

§ 7. Provided however, that if these authors select their respective types from different sections of the genus, and these sections be afterwards raised into genera, then both these names may be retained in a restricted sense for the new genera respectively.

Example.—The names *Œdemia* and *Melanetta* were originally co-extensive synonyms, but their respective types were taken from different sections which are now raised into genera, distinguished by the above titles.

[No special rule is required for the cases in which the later of two generic names is so defined as to be *less extensive* in signification than the earlier, for if the later includes the type of the earlier genus, it would be cancelled by the operation of § 4; and if it does not include that type, it is in fact a distinct genus.]

But when the later name is *more extensive* than the earlier, the following rule comes into oepration :—

[*A later name equivalent to several earlier ones is to be cancelled.*]

The same principle which is involved in § 6 will apply to § 8.

§ 8. If the later name be so defined as to be equal in extent to two or more previously published genera, it must be cancelled *in toto*.

Example.—*Psarocolius*, Wagl., 1827, is equivalent to five or six genera previously published under other names, therefore *Psarocolius* should be cancelled.

If these previously published genera be *separately adopted* (as is the case with the equivalents of *Psarocolius*), their original names will of course prevail; but if we follow the later author in combining them into one, the following rule is necessary :—

* These discarded names may, however, be *tolerated* if they have been afterwards proposed in a totally new sense, though we trust that in future no one will *knowingly* apply an old name, whether now adopted or not, to a new genus. (See proposition *q. infra.*)

[*A genus compounded of two or more previously proposed genera whose characters are now deemed insufficient, should retain the name of one them.*]

It sometimes happens that the progress of science requires two or more genera, founded on insufficient or erroneous characters, to be combined together into one. In such cases the law of priority forbids us to cancel *all* the original names and impose a *new* one on this compound genus. We must therefore select some one species as a type or example, and give the generic name which it formerly bore to the whole group now formed. If these original generic names differ in date, the oldest one should be the one adopted.

§ 9. In compounding a genus out of several smaller ones, the earliest of them, if otherwise unobjectionable, should be selected, and its former generic name be extended over the new genus so compounded.

Example.—The genera *Accentor* and *Prunella* of Vieillot not being considered sufficiently distinct in character, are now united under the general name of *Accentor*, that being the earliest. So also *Cerithium* and *Potamides*, which were long considered distinct, are now united, and the latter name merges into the former.

We now proceed to point out those few cases which form exceptions to the law of priority, and in which it becomes both justifiable and necessary to alter the names originally imposed by authors.

[*A name should be changed when previously applied to another group which still retains it.*]

It being essential to the binomial method to indicate objects in natural history by means of *two words* only, without the aid of any further designation, it follows that a generic name should only have one meaning,—in other words, that two genera should never bear the same name. For a similar reason, no two species in the same genus should bear the same name. When these cases occur, the later of the two duplicate names should be cancelled, and a new term, or the earliest synonym, if there be any, substituted. When it is necessary to form new words for this purpose, it is desirable to make them bear some analogy to those which they are destined to supersede, as where the genus of birds *Plectorhynchus*, being pre-occupied in Ichthyology, is changed to *Plectorhamphus*. It is, we conceive, the bounden duty of an author, when naming a new genus, to ascertain by careful search that the name which he proposes

to employ has not been previously adopted in other departments of natural history.* By neglecting this precaution he is liable to have the name altered, and his authority superseded by the first subsequent author who may detect the oversight, and for this result, however unfortunate, we fear there is no remedy, though such cases would be less frequent if the detectors of these errors would, as an act of courtesy, point them out to the author himself, if living, and leave it to him to correct his own inadvertencies. This occasional hardship appears to us to be a less evil than to permit the practice of giving the same generic name *ad libitum* to a multiplicity of genera. We submit, therefore, that

§ 10. A name should be changed which has before been proposed for some other genus in zoology or botany, or for some other species in the same genus, when still retained for such genus or species.

[*A name whose meaning is glaringly false may be changed.*]

Our next proposition has no other claim for adoption than that of being a concession to human infirmity. If such proper names of places as Covent Garden, Lincoln's Inn Fields, Newcastle, Bridgewater, &c., no longer suggest the ideas of gardens, fields, castles, or bridges, but refer the mind with the quickness of thought to the particular localities which they respectively designate, there seems no reason why the proper names used in natural history should not equally perform the office of correct indication, even when their etymological meaning may be wholly inapplicable to the object which they typify. But we must remember that the language of science has but a limited currency, and hence the words which compose it do not circulate with the same freedom and rapidity as those which belong to every-day life. The attention is consequently liable in scientific studies to be diverted from the contemplation of the thing signified to the etymological meaning of the sign, and hence it is necessary to provide that the latter shall not be such as to propagate actual error. Instances of this kind are indeed very rare, and in some cases, such as that of *Monodon*, *Caprimulgus*, *Paradisea apoda* and *Monoculus*, they have acquired sufficient currency no longer to cause error, and are therefore retained without change. But when we find a Batrachian reptile named in violation of its true affinities *Mastodonsaurus*, a Mexican species termed (through erroneous information of its habitat) *Picus cafer*, or an olive-coloured one *Muscicapa atra*,

* This laborious and difficult research will in future be greatly facilitated by the very useful work of M. Agassiz, entitled "Nomenclator Zoologicus."

or when a name in derived from an accidental monstrosity, as in *Picus semirostris* of Linnæus, and *Helix disjuncta* of Turton, we feel justified in cancelling these names, and adopting that synonym which stands next in point of date. At the same time we think it right to remark that this privilege is very liable to abuse, and ought therefore to be applied only to extreme cases and with great caution. With these limitations we may concede that

§ 11. A name may be changed when it implies a false proposition which is likely to propagate important errors.

[*Names not clearly defined may be changed.*]

Unless a species or group is intelligibly defined when the name is given, it cannot be recognised by others, and the signification of the name is consequently lost. Two things are necessary before a zoological term can acquire any authority, viz., *definition* and *publication*. Definition properly implies a distinct exposition of essential characters, and in all cases we conceive this to be indispensable, although some authors maintain that a mere enumeration of the component species, or even of a single type, is sufficient to authenticate a genus. To constitute *publication*, nothing short of the insertion of the above particulars *in a printed book* can be held sufficient. Many birds, for instance in the Paris and other continental museums, shells in the British Museum (in Dr. Leach's time), and fossils in the Scarborough and other public collections, have received MS. names which will be of no authority until they are published.* Nor can any unpublished descriptions, however exact (such as those of Forster, which are still shut up in a MS. at Berlin), claim any right of priority till published, and then only from the date of their publication. The same rule applies to cases where groups or species are published, but not defined, as in some museum catalogues, and in Lesson's "Traité d'Ornithologie," where many species are enumerated by name, without any description or reference by which they can be identified. Therefore,—

§ 12. A name which has never been clearly defined in some published work should be changed for the earliest name by which the object shall have been so defined.

[*Specific names, when adopted as generic, must be changed.*]

The necessity for the following rule will be best illustrated by an example. The *Corvus pyrrhocorax*, Linn., was afterwards

* These MS. names are in all cases liable to create confusion, and it is therefore much to be desired that the practice of using them should be avoided in future.

advanced to a genus under the name of *Pyrrhocorax*. Temminck adopts this generic name, and also retains the old specific one, so that he terms the species *Pyrrhocorax pyrrhocorax*. The inelegance of this method is so great as to demand a change of the specific name, and the species now stands as *Pyrrhocorax alpinus*, Vieill. We propose, therefore, that

§ 13. A new specific name must be given to a species when its old name has been adopted for a genus which includes that species.

N.B.—It will be seen, however, below that we strongly object to the further continuance of this practice of elevating specific names into generic.

[*Latin orthography to be adhered to*].

On the subject of orthography it is necessary to lay down one proposition,—

§ 14. In writing zoological names, the rules of Latin orthography must be adhered to.

In Latinizing Greek words there are certain rules of orthography known to classical scholars which must never be departed from. For instance, the names which modern authors have written *Aipunemia*, *Zenophasia*, *poiocephala*, must according to the laws of etymology, be spelt *Æpycnemia*, *Xenophasia*, and *pœocephala*. In Latinizing modern words the rules of classic usage do not apply, and all that we can do is to give to such terms as classical an appearance as we can, consistently with the preservation of their etymology. In the case of European words whose orthography is fixed, it is best to retain the original form, even though it may include letters and combinations unknown in Latin. Such words, for instance, as *Woodwardi*. *Knighti*, *Bullocki*, *Eschscholtzi*, would be quite unintelligible if they were Latinized into *Vudvardi*, *Cnichti*, *Bullocci*, *Essolzi*, &c. But words of barbarous origin, having no fixed orthography, are more pliable, and hence, when adopted into the Latin, they should be rendered as classical in appearance as is consistent with the preservation of their original sound. Thus the words *Tockus*, *awsuree*, *argoondah*, *kundoo*, &c., should, when Latinized, have been written *Toccus*, *ausure*, *argunda*, *cundu*, &c. Such words ought, in all practicable cases, to have a Latin termination given them, specially if they are used generically.

In Latinizing proper names, the simplest rule appears to be to use the termination *-us*, genitive *-i*, when the name ends with a

consonant, as in the above examples; and *-ius*, gen.-*ii*, when it ends with a vowel, as *Latreille*, *Latreillii*, &c.

In converting Greek words into Latin the following rules must be attended to:—

Greek.		Latin.	Greek.		Latin.
αι	becomes	æ.	θ	becomes	th.
ει	„	i.	φ	„	ph.
ος terminal,		us.	χ	„	ch.
ον	„	um.	κ	„	c.
ου	becomes	u.	γχ	„	nch.
οι	„	œ.	γγ	„	ng.
υ	„	y.	'	„	h.

When a name has been erroneously written, and its orthography has been afterwards amended, we conceive that the authority of the original author should still be retained for the name, and not that of the person who makes the correction.

PART II.

RECOMMENDATIONS FOR IMPROVING THE NOMENCLATURE IN FUTURE.

The above propositions are all which, in the present state of the science, it appears practicable to invest with the character of laws. We have endeavoured to make them as few and simple as possible, in the hope that they may be the more easily comprehended and adopted by naturalists in general.

We are aware that a large number of other regulations, some of which are hereafter enumerated, have been proposed and acted upon by various authors who have undertaken the difficult task of legislating on this subject; but, as the enforcement of such rules would in many cases undermine the invaluable principle of priority, we do not feel justified in adopting them. At the same time we fully admit that the rules in question are, for the most part, founded on just criticism, and therefore, though we do not allow them to operate retrospectively, we are willing to retain them for future guidance. Although it is of the first importance that the principle of priority should be held paramount to all others, yet we are not blind to the desirableness of rendering our scientific language palatable to the scholar and the man of taste. Many zoological terms, which are now marked with the stamp of perpetual currency, are yet so far defective in construction that our inability to remove them without infringing the law of priority may be a subject of regret. With these terms we cannot interfere, if we adhere to the principles above laid down; nor is there even any remedy,

if authors insist on infringing the rules of good taste by introducing into the science, words of the same inelegant or unclassi character in future. But that which cannot be enforced by law may, in some measure, be effected by persuasion; and with this view we submit the following propositions to naturalists, under the title of *Recommendations for the Improvement of Zoological Nomenclature in future.*

[*The best names are Latin or Greek characteristic words.*]

The classical languages being selected for zoology, and words being more easily remembered in proportion as they are expressive, it is self-evident that

§ A. The *best* zoological names are those which are derived from the Latin or Greek, and express some distinguishing characteristic of the object to which they are applied.

[*Classes of objectionable names.*]

It follows from hence that the following classes of words are more or less objectionable in point of taste, though, in the case of *genera*, it is often necessary to use them, from the impossibility of finding characteristic words which have not before been employed for other genera. We will commence with those which appear the least open to objection, such as

(*a.*) *Geographical names.*—These words being for the most part adjectives, can rarely be used for *genera*. As designations of *species* they have been so strongly objected to, that some authors (Wagler for instance) have gone the length of substituting fresh names wherever they occur; others (*e.g.* Swainson) will only tolerate them where they apply *exclusively*, as *Lepus hibernicus, Troglodytes europœus*, &c. We are by no means disposed to go to this length. It is not the less true that the *Hirundo javanica* is a Javanese bird, even though it may occur in other countries also, and though other species of *Hirundo* may occur in Java. The utmost that can be urged against such words is, that they do not tell the *whole truth*. However, as so many authors object to this class of names, it is better to avoid giving them, except where there is reason to believe that the species is chiefly confined to the country whose name it bears.

(*b.*) *Barbarous names.*—Some authors protest strongly against the introduction of exotic words into our Latin nomenclature; others defend the practice with equal warmth. We may remark, first, that the practice is not contrary to classical usage, for the Greeks and Romans did occasionally, though with reluctance, introduce barbarous words in a modified form

into their respective languages. Secondly, the preservation of the trivial names which animals bear in their native countries is often of great use to the traveller in aiding him to discover and identify species. We do not therefore consider, if such words have a Latin termination given to them, that the occasional and judicious use of them as scientific terms can be justly objected to.

(*c.*) *Technical names.*—All words expressive of trades and professions have been by some writers excluded from zoology, but without sufficient reason. Words of this class, *when carefully chosen*, often express the peculiar characters and habits of animals in a metaphorical manner, which is highly elegant. We may cite the generic terms, *Arvicola*, *Lanius*, *Pastor*, *Tyrannus*, *Regulus*, *Mimus*, *Ploceus*, &c., as favourable examples of this class of names.

(*d.*) *Mythological or historical names.*—When these have no perceptible reference or allusion to the characters of the object on which they are conferred, they may be properly regarded as unmeaning and in bad taste. Thus the generic names, *Lesbia*, *Leilus*, *Remus*, *Corydon*, *Pasiphae*, have been applied to a Humming bird, a Butterfly, a Beetle, a Parrot, and a Crab respectively, without any perceptible association of ideas. But mythological names may sometimes be used as generic with the same propriety as technical ones, in cases where a direct allusion can be traced between the narrated actions of a personage and the observed habits or structure of an animal. Thus when the name *Progne* is given to a Swallow, *Clotho* to a Spider, *Hydra* to a Polyp, *Athene* to an Owl, *Nestor* to a grey-headed Parrot, &c., a pleasing and beneficial connection is established between classical literature and physical science.

(*e.*) *Comparative names.*—The objections which have been raised to words of this class are not without foundation. The names, no less than the definitions of objects, should, where practicable, be drawn from positive and self-evident characters, and not from a comparison with other objects, which may be less known to the reader than the one before him. Specific names expressive of comparative size are also to be avoided, as they may be rendered inaccurate by the after discovery of additional species. The names *Picoides*, *Emberizoides*, *Pseudoluscinia*, *rubeculoides*, *maximus*, *minor*, *minimus*, &c., are examples of this objectionable practice

(*f.*) *Generic names compounded from other genera.*—These are in some degree open to the same imputation as comparative words; but as they often serve to express the position of a genus as intermediate to, or allied with, two other genera, they may occasionally be used with advantage. Care must be taken

[illegible]t to adopt such compound words as are of too great length, and not to corrupt them in trying to render them shorter. The names *Gallopavo*, *Tetraogallus*, *Gypaetos*, are examples of the appropriate use of compound words.

(*g.*) *Specific names derived from persons.*—So long as these complimentary designations are used with moderation, and are restricted to persons of eminence as scientific zoologists, they may be employed with propriety in cases where expressive or characteristic words are not to be found. But we fully concur with those who censure the practice of naming species after persons of no scientific reputation, as curiosity-dealers (e.g. *Caniveti*, *Boissoneauti*), Peruvian priestesses (*Cora*, *Amazilia*) or Hottentots (*Klassi*).

(*h.*) *Generic names derived from persons.*—Words of this class have been very extensively used in botany, and therefore it would have been well to have excluded them wholly from zoology, for the sake of obtaining a *memoria technica* by which the name of a genus would at once tell us to which of the king-[illegible]f nature it belonged. Some few personal generic names [illegible]owever, crept into zoology, as *Cuvieria*, *Mulleria*, *Rossia*, [illegible]*ia*, &c., but they are very rare in comparison with those [illegible]any, and it is perhaps desirable not to add to their number.

[illegible]) *Names of harsh and inelegant pronunciation.*—These words [illegible]grating to the ear, either from inelegance of form, as *Hu-[illegible]ua*, *Yuhina*, *Craxirex*, *Eschscholtzi*, or from too great length, as *chirostrongylostinus*, *Opetiorhynchus*, *brachypodioides*, *Thecodontosaurus*, not to mention the *Enaliolimnosaurus*, *crocodilocephaloides* of a German naturalist. It is needless to enlarge on the advantage of consulting euphony in the construction of our language. As a general rule it may be recommended to avoid introducing words of more than five syllables.

(*k.*) *Ancient names of animals applied in a wrong sense.*—It has been customary, in numerous cases, to apply the names of animals found in classic authors at random to exotic genera or species which were wholly unknown to the ancients. The names *Cebus*, *Callithrix*, *Spiza*, *Kitta*, *Struthus*, are examples. This practice ought by no means to be encouraged. The usual defence for it is, that it is impossible now to identify the species to which the name was anciently applied. But it is certain that if any traveller will take the trouble to collect the vernacular names used by the modern Greeks and Italians for the Vertebrata and Mollusca of Southern Europe, the meaning of the ancient names may in most cases be determined with the [illegible]test precision. It has been well remarked that a Cretan [illegible]r boy is a far better commentator on Aristotle's 'History of [illegible]mals' than a British or German scholar. The use however

generic names have been lately introduced which run counter to this rule, and form most unsightly objects to all who are conversant with the spirit of the Latin language. A name made up of the first half of one word and the last half of another, is as deformed a monster in nomenclature as a Mermaid or a Centaur would be in zoology; yet we find examples in the names *Corcorax* (from *Corvus* and *Pyrrhocorax*), *Cypsnagra* (from *Cypselus* and *Tanagra*), *Merulaxis* (*Merula* and *Synallaxis*), *Loxigilla* (*Loxia* and *Fringilla*), &c. In other cases, where the *commencement* of both the simple words is retained in the compound, a fault is still committed by cutting off too much of the radical and vital portions, as is the case in *Bucorvus* (from *Buceros* and *Corvus*), *Ninox* (*Nisus* and *Noctua*), &c.

(*p.*) *Nonsense names.*—Some authors having found difficulty in selecting generic names which have not been used before, have adopted the plan of coining words at random without any derivation or meaning whatever. The following are examples; *Viralva*, *X[illegible]*, *Azeca*, *Assiminia*, *Quedius*, *Spisula*. To the[illegible] we may refer *anagrams* of other generic names, as [illegible]and *Cedola* of *Alcedo*, *Zapornia* of *Porzana*, &c. Such trifling as this is in very bad taste, and is especially calculated to bring the science into contempt. It finds no precedent in the Augustan age of Latin, but can be compared only to the puerile quibblings of the middle ages. It is contrary to the genius of all languages, which appear never to produce new words by spontaneous generation, but always to derive them from some other source, however distant or obscure. And it is peculiarly annoying to the etymologist, who, after seeking in vain through the vast store-houses of human language for the parentage of such words, discovers at last that he has been pursuing an *ignis fatuus*.

(*q.*) *Names previously cancelled by the operation of* § 6.—Some authors consider that, when a name has been reduced to a synonym by the operations of the laws of priority, they are then at liberty to apply it at pleasure to any new group which may be in want of a name. We consider, however, that when a word has once been proposed in a given sense, and has afterwards sunk into a synonym, it is far better to lay it aside for ever than to run the risk of making confusion by re-issuing it with a new meaning attached.

(*r.*) *Specific names raised into generic.*—It has sometimes been the practice in sub-dividing an old genus, to give to the lesser genera so formed, the names of their respective typical species. Our Rule 13 authorizes the forming a new specific name in such cases; but we further wish to state our objections to the practice altogether. Considering as we do that the original specific

names should, as far as possible, be held sacred, both on the grounds of justice to their authors and of practical convenience to naturalists, we would strongly dissuade from the *farther continuance* of a practice which is gratuitous in itself, and which involves the necessity of altering long established specific names.

We have now pointed out the principal rocks and shoals which lie in the path of the nomenclator; and it will be seen that the navigation through them is by no means easy. The task of constructing a language which shall supply the demands of scientific accuracy on the one hand, and of literary elegance on the other, is not to be inconsiderately undertaken by unqualified persons. Our nomenclature presents but too many flaws and inelegancies already, and as the stern law of priority forbids their removal, it follows that they must remain as monuments of the bad taste or bad scholarship of their authors to the latest ages in which zoology shall be studied.

[*Families to end in* idæ, *and Subfamilies in* inæ.]

The practice suggested in the following proposition has adopted by many recent authors, and its simplicity venience is so great that we strongly recommend its uni use.

§ B. It is recommended that the assemblages of genera termed *families* should be uniformly named by adding the termination *idæ* to the name of the earliest known, or most typically characterized genus in them; and that their subdivisions, termed *Subfamilies*, should be similarly constructed, with the termination *inæ*.

These words are formed by changing the last syllable of the genitive case into *idæ* or *inæ*, as *Strix*, *Strigis*, *Strigidæ*, *Buceros*, *Bucerotis*, *Bucerotidæ*, not *Strixidæ*, *Buceridæ*.

[*Specific names to be written with a small initial.*]

A convenient *memoria technica* may be effected by adopting our next proposition. It has been usual, when the titles of species are derived from proper names, to write them with a capital letter, and hence when the specific name is used alone it is liable to be occasionally mistaken for the title of a genus. But if the titles of *species* were *invariably* written with a *small* initial, and those of *genera* with a *capital*, the eye would at once distinguish the rank of the group referred to, and a possible source of error would be avoided. It should be fu[illegible]her

remembered that all species are *equal*, and should therefore be written all *alike*. We suggest, then, that

§C. Specific names should *always* be written with a small initial letter, even when derived from persons or places, and generic names should be always written with a capital.

[*The authority for a species, exclusive of the genus, to be followed by a distinctive expression.*]

The systematic names of zoology being still far from that state of fixity which is the ultimate aim of the science, it is frequently necessary for correct indication to append to them the name of the person on whose authority they have been proposed. When the same person is authority both for the specific and generic name, the case is very simple; but when the specific name of one author is annexed to the generic name of another, some difficulty occurs. For example, the *Muscicapa* [illegible] of Linnæus belongs to the modern genus *Tyrannus* [illegible]ot; but Swainson was the first to apply the specific [illegible] Linnæus to the generic one of Vieillot. The question [illegible]ises, Whose authority is to be quoted for the name [illegible]*us crinitus?* The expression *Tyrannus crinitus*, Linn., [illegible] imply what is untrue, for Linnæus did not use the term [illegible]*nnus*; and *Tyrannus crinitus*, Vieill., is equally incorrect, for Vieillot did not adopt the name *crinitus*. If we call it *Tyrannus crinitus*, Sw., it would imply that Swainson was the first to describe the species, and Linnæus would be robbed of his due credit. If we term it *Tyrannus*, Vieill., *crinitus*, Linn., we use a form which, though exprassing the facts correctly, and therefore not without advantage in particular cases where great exactness is required, is yet too lengthy and inconvenient to be used with ease and rapidity. Of the three persons concerned with the construction of a binomial title in the case before us, we conceive that the author who *first* describes and names a species which forms the ground-work of later generalizations, possesses a higher claim to have his name recorded than he who afterwards defines a genus which is found to embrace that species, or who may be the mere accidental means of bringing the generic and specific names into contact. By giving the authority for the *specific* name in preference to all others, the inquirer is referred *directly* to the original description, habitat, &c., of the species, and is at the same time reminded of the date of its discovery; while genera, being less numerous than species, may be carried in the memory, or referred to in systematic works without the necessity of perpetually quoting their authorities. The most simple mode

then for ordinary use seems to be to append to the original authority for the species, when not applying to the genus also, some distinctive mark, such as (*sp.*), implying an exclusive reference to the *specific* name, as *Tyrannus crinitus* (Linn.) (*sp.*), and to omit this expression when the same authority attaches to both genus and species, as *Ostrea edulis*, Linn.* Therefore,

§ D. It is recommended that the authority for a specific name, *when not applying to the generic name also*, should be followed by the distinctive expression (*sp.*)

[*New genera and species to be defined* amply *and* publicly.]

A large proportion of the complicated mass of synonyms which has now become the opprobrium of zoology, has originated either from the slovenly and imperfect manner in which species and groups have been originally defined, or from their definitions having been inserted in obscure [illegible] publications which have never obtained an extensive cir[illegible] Therefore, although under § 12, we have conceded th[illegible] insertion in a printed book is sufficient for *publication*, [illegible] would strongly advise the authors of new groups alw[illegible] give, in the first instance, a full and accurate definition o[illegible] characters, and to insert the same, in such periodical or [illegible] works as are likely to obtain an immediate and extensive circulation. To state this briefly

§ E. It is recommended that new genera or species be *amply* defined, and *extensively* circulated in the first instance.

[*The names to be given to subdivisions of genera to agree in gender with the original genus.*]

In order to preserve specific names as far as possible in an unaltered form, whatever may be the changes which the genera to which they are referred may undergo, it is desirable, when it can be done with propriety, to make the new subdivisions of genera agree *in gender* with the old groups from which they are formed. This recommendation does not, however, authorise the changing the gender or termination of a genus already established. In brief,

§ F. It is recommended that in subdividing an old genus in future, the names given to the subdivisions should agree in gender with that of the original group.

* The expression *Tyrannus crinitus* (Linn.) would perhaps be preferable from its greater brevity.

[*Etymologies and types of new genera to be stated.*]

It is obvious that the names of genera would in general be far more carefully constructed, and their definitions would be rendered more exact, if authors would adopt the following suggestion :—

§ G. It is recommended that in defining new genera the etymology of the name should be always stated, and that one species should be invariably selected as a type or standard of reference.

In concluding this outline of a scheme for the rectification of zoological nomenclature, we have only to remark that almost the whole of the propositions contained in it may be applied with equal correctness to the sister science of botany. We have preferred, however, in this essay to limit our views to zoology both for the sake of rendering the question less complicated because we conceive that the botanical nomenclature of the present day stands in much less need of distinct enactment than the zoological. The admirable rules laid down by Linnæus, De Candolle, and other botanists (to which, no less than the works of Fabricius, Illiger, Vigors, Swainson, and other zoologists, we have been much indebted in preparing the present document), have always exercised a beneficial influence over their disciples. Hence the language of botany has attained a more perfect and stable condition than that of zoology : and if this attempt at reformation may have the effect of advancing zoological nomenclature beyond its present backward and abnormal state, the wishes of its promoters will be fully attained.

(Signed) H.E. Strickland.
John Phillips.
John Richardson.
Richard Owen.
Leonard Jenyns.
W. J. Broderip.
J. S. Henslow.
W. E. Suckhard.
G. R. Waterhouse.
W. Yarrell.
C. Darwin.
J. O. Westwood.

June 27th, 1842.

[I understand that subsequent to this reprint of 1863, above reproduced, some few slight modifications of the above rules were agreed upon. What these modifications were I have failed as yet to ascertain, but as soon as practicable I will reproduce these also.—Ed., S. F., *October* 1877.]

Occasional Notes from Sikhim.—No. I.

By. J. A. Gammie.

In sending a few notes from this part of India, I would draw attention to Hooker's Himalayan Journals, which contain an admirable account of Sikhim. Although the author spent but part of two years in it, and labored under the great disadvantage of having had no previous knowledge of the customs or language of its inhabitants, the information he amassed is, in many respects, almost exhaustive, and in every way trustworthy. After twelve years' uninterrupted residence in Sikhim I can but admire the book the more. For the fulness and correctness of its information, it is beyond all praise, and I would strongly recommend intending visitors to this part of the world to procure it.

Unfortunately, in consequence of Doctor (now Sir Joseph) Hooker's time having been fully taken up with the [illegible]ny, Geography, Meteorology, &c., of the district, very [illegible] said about its birds.

In all essential matters the information collected, more [illegible] quarter of a century ago, stands perfectly good to this day [illegible] some respects a gradual change has taken place. The country had not then been cleared of its virgin forests for Tea and Cinchona plantations, and was but thinly inhabited by Lepchas, who subsisted partly on the few crops raised on small clearances—to be abandoned as soon as exhausted for virgin soil—and partly on roots, &c., collected in the jungles. Now, there are Tea plantations in every direction, from the Rungeet to the far side of the Terai, and very little virgin forest remains under 6,000 feet elevation; while the population, now chiefly Nepaulese, has become almost dense, and is either employed on the plantations or in raising crops for sale to those so employed. The present system of native cultivation, though far from perfect, is very much in advance of that in vogue six or eight years ago, and is another illustration of the truth of the old adage —

"Necessity is the mother of invention."

A few years ago, when land was but little valued, this or that particular spur was spoken of as *the* place that was, and alone *could* be, ploughed, but now almost every native cultivator has his plough and pair of bullocks, and ploughs most impossible-looking places. Their plough is certainly a primitive looking affair, but a good ploughman makes fair work with it on ordinary slopes, while on the steeper slopes an English plough could not possibly be used. Land is now in much more request, and when a native gets

settled down on a ploughable piece, he cultivates it year after year, builds a much better house than formerly, wears more clothing—even shoes in winter—and bedecks his wives and children with large quantities of jewellery.

A few years ago the (for that time) well-to-do ryot was rather proud of his clumsy Nepaul umbrella of painted cloth and cane ribs, but now he must have an English one, and nothing less than a twelve-steel-ribbed one will suffice. In nothing, perhaps, can the native's prosperity be easier traced than in his style of umbrella. From his mat one to the painted, then to veritable "Sairey Gamps," and so on to the present twelve-ribbed stage. The painted ones are rather a loss to the ornithologist, for on them were often displayed *beautiful* pictures of what are, even to this day, "new and undescribed" species, I might say genera, of birds!

The Tea Industry has certainly been a great benefit to the native. Many of them did not think so, and made a rush across to British Bhootan where the Tea planter is n[illegible]ed to follow; but except those situated whence they [illegible]e their produce to market they would only be too glad [illegible] Tea planters near them again, and many long to get [illegible]o their old quarters. They say, "we can grow plenty [illegible]ff, but without purchasers it is of no use." Their wants [illegible]little comforts had increased so insensibly, though surely, that they did not know their lives had been made more comfortable until they got back to the same sort of position they were in before the planter appeared on the scene and bettered their condition in spite of themselves. It is still no uncommon thing to hear Europeans, who ought to know better, talking of the ruinous system of cultivation—or rather non-cultivation, the natives have of taking one or two crops only from the same piece of land, and then moving on to fresh ground. This system—and a bad one it was—used to be carried on, but since some years back it has become an impossibility owing to the increase of population and scarcity of land. The change has been so gradual that many residents are scarcely aware it has taken place. In many parts there are hundreds of acres on end, cultivated year after year with good results.

This radical change—from virgin forests to large tracts of cultivated land—is causing great alterations in the nature of the vegetation, and, no doubt, equally great changes among the birds, insects, &c., which it will be interesting to watch. These being constantly on the move, an increase or decrease in their numbers are not so readily noticed. The smaller plants fall much more under every-day notice than do the larger trees, many of which run great risk of becoming extinct, as the majority of

them in the young state require shelter and shade, while the smaller growing plants, as a rule, only require their bigger neighbours to be cleared away to enable them to spread in every direction to the complete suppression of the giants' progeny. Take for instance the grass known among planters as Seeroo or Ooloo (*Saccharum spontaneum* ?) In a virgin forest it is one of the rarest plants, but clear away the trees and keep their seedlings down for a year or two by fire and cattle, and the grass will spring up as if by spontaneous generation—which appears to be believed in by several of the would-be, wise and scientific advisers of Tea planters—to the exclusion ever after of almost every thing else. Many small plants that are now quite common were extremely rare twelve years ago. I remember finding my first plant of the elegant *Davallia tenuifolia*, and for years rarely saw another, but now it is abundant along the sides of the Cinchona roads. A visitor to Darjeeling cannot fail to observe the beautiful, large masses of the European Club-moss (*Lycopodium clavatum*) along the steep banks of the cart road; but let him walk into the forest beyond the opening made for the road, and he will find how rare a plant it naturally is: and many other plants that

These changes in the distribution of plants take place so gradually that people constantly living in the place are apt to overlook them. As regards insects, there may still be as many species of moths and butterflies as formerly, but the decrease in the number of individuals, even in my short time, is remarkable. Hooker, in writing of them, says: "They sat by thousands—such an entomological display cannot be surpassed." There is now nothing to equal this description, and Hooker always rather under than over estimates. Snakes, on the other hand, are getting more abundant year by year, but their greatest enemy, the land crab, is scarcer, which may account for the increase. Crabs do not thrive in the grassy jungles which have taken the place of the forest trees, but snakes do, the latter thus gaining a double chance of multiplying.

It is amusing to watch a crab trying to draw a snake that has partly got into its hole. He catches it by one "hand" quite close to the hole and holds it tight till it yields a little, when he clutches it in front with the other, and so on, till the snake either yields altogether or breaks. Usually the crab has to be satisfied with the tail-end on which he makes a hearty meal, tearing it in pieces and handing the morsels into its out-of-the-way mouth in a very ludicrous manner. Those with an unfortunate—for themselves—prejudice against snakes may think that snake-killing is the particular mission of the crab to the warmer slopes of the Himalayas; but I hope, and believe, that

it has a better part to play in the economy of nature than that of destroying our many charming species of harmless snakes.

Every one must have observed the great increase, if not change, in bird-life after a few trees have grown up in places where no trees were before. The former superintendent of the Poomong Cinchona Plantation planted a quantity of *Cryptomeria japonica* about his house, and when they got up to about twenty feet in height the number of birds about them was surprising. Birds appear to have a particular affection for fir trees. Domestic fowls will perch in them in the day-time in preference to any other kind of tree; often, indeed, they would not rest at all were it not for the pleasure of being among the fir branches. I formerly thought that the reason of this preference was that the resinous smell kept away troublesome insects, but a few months ago I saw two jungle cocks feeding in a certain spot in the valley of the Teesta, and as my curiosity was excited on seeing them return to the same spot in a few seconds, I searched, and found they had been feeding on fleshy seeds with a [illegible]esinous smell; so, perhaps, fowls and other birds have [illegible]ess for resinous substances. Be the reason what it [illegible] trees have a special attraction for birds.

[illegible]e we got up trees and large bamboos round the Cinchona [illegible]lows at Mongpoo, the increase in the number of birds is [illegible]ing. Many people object to trees and bamboos near their [illegible]ses under the idea that they shelter mosquitos and other insects, but as far as my experience goes these prefer sticking among, or near the leaves to coming into the houses. We have not more mosquitos now than we had when we were comparatively bare, but even were there many more—which I by no means admit—the large flocks of *Pericrocotus speciosus* that visit us daily are, alone, sufficient to recompense us for numerous bites, and to rejoice the heart of any lover of birds.

We have a few old trees with dead tops, which, when we first came to the place, I thought, in my consummate ignorance, should be cut out as useless and unsightly, but we soon saw that the birds considered the dead tops to be the most useful parts of the trees by a long way, and we wisely left them alone. Now we are daily repaid a thousand fold. In the spring mornings and evenings that lovely songster, *Copsychus saularis*, pours forth its sweet song from the dead tops. At this season (September) it is pretty to see the long rows of *Artamus fuscus* seated on them in the evenings, as close together as they can pack, occasionally one or two dropping out of the ranks for a short sally after insects, and sometimes altogether taking a flight for a minute or two, keeping up a continual, pleasant, twittering noise. *Collyris nigriceps* often regales us with a pretty, though rather

feeble, song from these dead tops, and many other birds are regular frequenters of them. The moral of all this is: never cut away a dead tree top if you wish to do the birds a good turn. Man is far too ready to take it for granted that everything in this world has been made for his sole use and benefit and to act in a cruel and inconsiderate manner towards what he is pleased to call the *lower* members of the animal kingdom, Not very long ago I heard a high official, of an imaginative turn of mind, wonder why there should be inaccessible ravines filled with trees where they could be of no earthly use that he could see, quite overlooking the evident fact that the world was not made for the exclusive use of mankind. I was not so rude as to say so, but I thought "were you a Hornbill, or Bear, or Monkey, or even a wild Pig, you would wonder why there should be any other sort of places." These inaccessible spots now provide more food, and safer breeding places for many birds and other animals than all the gentle slopes put together.

Our first pair of Mynahs (*Acridotheres tristis*) made their appearance about five years ago. They, and their [illegible], have bred with us every year since, and now there are two good-sized flocks of them. To my great disappo[illegible] they shun our house, which is on a dry ridge; and ke[illegible] another house about half a mile distant. It has a strea[illegible] it which may be the attraction. Its occupier was very p[illegible] of his Mynahs, and though he knew how disappointed I [illegible] that none of them would come our way, would, every time I went across, say with a most tantalizing smile of exultation, "You see the Mynahs stay with me." But this was endurable compared with his crowing about a one-legged *Motacilla luzoniensis* which took up its quarters about his house. There it stuck, month after month, without moving forty yards away, and never once came near us. It was a lovely specimen, as plump as it could be, and not a feather out of place, and so tame. It would pick up bread crumbs and rice—rather unusual for a Wag-tail, I think—from under our feet. At night it perched on the ledge of a warm chimney. It really was a treat to see the little creature hopping about so nimbly on its one leg, and looking so comfortable and contented. How I envied its possessor, to be sure! I would sometimes point out our Minivets, Spider-hunters, Swallow Shrikes, &c., when he came our way, but he would, with the most superior air, say, "Oh! Ah! they are very fine, but you, should just come over and see my one legged Wagtail," and then I could but swallow my envy and mortification as best I could, and admit the inferiority of our possessions. It stayed on till well into the rains, long after all its tribe had left for

their breeding quarters, and we hoped it would always remain, but one morning it was missing, and has never returned.

One pair of our Mynahs, at least we claim them, went across the valley this year to a Tea planter on the next ridge. He is a Pigeon-fancier, and had a cot of eight holes nailed up against his house for his pigeons to breed in. The one pair of Mynahs drove out all the pigeons, built a nest in every hole, or rather stuffed them full of grass, to keep full possession I suppose, and brought up a fine brood in one of them. The pigeons were very much afraid of them and never ventured near. The planter did not like to see his pigeons ousted in this unceremonious manner, but, as he said, he admired the impudence of the Mynahs too much to drive them away. Mynahs may do great good to Tea planters in keeping down grasshoppers, which often do much inqury to young Tea plants.

Centropus bengalensis has increased largely of late. Among grassy scrub, up to 3,500 feet, it is now abundant, where, only a few years ago, it was rarely to be found. In the earlier part of the rainy season its odd, monotonous notes are to be heard in every direction. I am not sure that the male calls, but have shot the female—as I found by dissection—when calling. It has a call of a double series of notes: whoot, whoot, whoot, whoot; then often a pause of four or five seconds, kurook, kurook, kurook, kurook. The "whoot" is quite ventriloquistic, sounding as if it came from a distance of six or eight yards from the bird. Before calling, it seats itself about five feet from the ground, then you see it draw its neck and body together, slightly puffing out its body feathers, raising its back and depressing its tail, and for every "whoot" there is a violent throb of the body as if the bird was in great pain, at the same time the motion of the throat is scarcely perceptible and its bill is closed. Then, as if greatly relieved, it stretches itself out, the feathers fall smooth, and with open mouth and throbbing throat comes the "kurook" without the slightest attempt at ventriloquism. When searching for the caller one must take no notice of the "whoot" but wait for the "kurook." It feeds almost entirely on grasshoppers, and frequents the open, scrubby tracts only. I have never once seen it in larger forest.

Geocichla citrina is another bird that has become common in the shady Cinchona plantations. Until a year or two ago, I never saw it except near the bottoms of our warmest valleys, and in the Terai, where it is abundant, but this year we have it in large numbers up to nearly 4,000 feet.

We have a patch of plantains and a few plants of *Passiflora edulis* near our house, which are great attractions to *Arachnothera magna*. At first they were rather shy, but lately they

have got bold enough to feed within a few yards of us. Jerdon says he "found it at Darjeeling from the level of the lowest valleys to about 3,000 feet only, generally frequenting high trees, and picking various insects off the flower, buds and leaves." This account is a mistaken one, as is also his description of the nest. It occurs up to 6,000 feet, generally frequenting the the wild plantains and smaller trees, and picks insects* out of the open flowers, as might be guessed from the length and formation if its bill. When the passion flowers are open, they hunt them over several times a day, but plantain flowers are their favorite hunting grounds, and deftly do they insert their bills in one flower after the other, now and again pausing in search to give tongue to their sharp "tirik," "tirik." It is not a very abundant bird anywhere, but as it is of a solitary disposition, and never moves from one place to another without uttering its peculiar, and unmistakeable call, it is, perhaps, oftener seen than many birds that are very much more numerous. A pair are about our compound this September, feeding a fully-fledged Cuckoo, (*C. micropterus*) quite strong on the wing, but evidently too lazy to forage for himself so long has he can get this foster-parents to feed him. It looks absurd to see the little creatures feeding a great bird like this Cuckoo. They appear to have hard work in keeping him satisfied, but are evidently proud of their charge. My friend Mandelli insists that we have two species of *Arachnothera* in the district, and he is usually right in his assertions.

A marked instance of how rapidly animals increase in numbers under extra favorable circumstances occurred in Sikhim in 1867-68 when one of the small hill bamboos, flowered and seeded simultaneously all over Sikhim, as is its habit to do about once in five and twenty years. The increase in the number of rats, caused by the extra amount of food, was something marvellous. The seeds yielded by the large masses of bamboos were more than sufficient food for them, and as long as they lasted, the increase went on at an alarming pace. When that food-supply ceased they descended in such legions on the maize fields that on every cornstalk, almost, might have been seen several rats. After the remnant of the corn crop had been harvested, the legions of rats diminished as suddenly as they had increased. So rapid, at these times, are both the increase and decrease that the natives have the idea that they come up the river beds from the plains to eat the bamboo seed, and afterwards take their departure by the same route, which is, of course, absurd. Birds, as they breed fewer times in the year, cannot increase so rapidly as the rats did; but

* It is for the nectar rather than the insects that the spider-hunters chiefly visit the flowers.—Ed., S. F.

then many of the great changes made in the vegetation by large clearances, are permanent, instead of being temporary, as in the case of the seeding of the bamboo, which give those, whose food-supply has been permanently increased by the changes, the better chance in the long run; and a corresponding disadvantage to those whose food-supply has been for ever diminished. If Tea planters would only study ornithology, or any other branch of natural science, they would soon discover for themselves how quickly changes in the nature of the vegetation affect the distribution of different animals, and such knowledge would be very suggestive of the causes of the multiplication of the insect pests which affect their tea bushes, and might lead them on to think of either preventitives or cures. The utter nonsense that has been published about tea pests of late by empirics could have never for a moment been listened to by men with the slightest knowledge of animal or vegetable physiology; but I must not enter into Tea subjects here.

A List of Birds collected and observed on the Palani Hills.

By Rev. S. B. Fairbank, D.D.

Eleven years ago the state of my health required me to leave my home in the Dakhan and seek its restoration by a sojourn of some months at a mountain sanitarium.

Providence kindly sent me to Kodaikanal on the Palani Hills. I was allowed to stay there for ten delightful months, and came away with the assured opinion that the climate of the Palani Hills is as near perfection as that of any spot, at least, in India.

It may have been exceptionally fine that year. It was continual Spring. Rain fell in every month, and just about as we needed it. Not less than three inches and not more than eight inches of rain fell in each of those consecutive ten months. At our house, which we called Rose Cottage, because it was always embowered in roses, the thermometer did not fall below 50°, nor rise above 75°. We needed a fire every evening and had a cosy wood fire in an open fireplace.

During some years there are months when no rain falls, and sometimes there are storms with high winds and heavy rain. Some tell of cold snaps when ice is formed on the surface of the lake. That year we *had* ice at Christmas, but only enough to make ice cream to accompany the strawberries that were just then most abundant. The ice *grew* in stalks,

like crystal mushrooms, just under the surface of the ground, in a cold wet place beside the lake.

One needs occupation when the clouds gather thick around the tops of the hills and stay there all day. I preferred to use such days for running down to lower levels with my gun and collecting box. Even when the weather is fine, the collector is generally off down the hill sides, because the variety he seeks is greater there. The Palani Hills above 5,000 feet would be much improved were there more forest upon them. The surface is covered with grass, and trees are few and far between. Kodaikanal, the umbrella grove, or as some prefer to pronounce and translate it, Kodikānal, the grove of creepers, was a fine collection of large trees on a steep hill side, three quarters by one quarter of a mile in extent. Many of the old Cinnamon (*C. iners*), Olive (*Eleocarpus oblongus*), Jambul, (*Syzigium*) and other fine trees have been felled ; and a thicket of underwood, in some places almost impenetrable, has grown up through the whole grove. Additions have been made by planting Bluegums, Wattle trees and other Acacias introduced from Australia. The Acacias are now naturalized and the older Bluegums produce fertile seed. One of three Bluegums in our yard, that were fourteen years old from the seed, measured nine feet four inches in circumference, a yard above the ground and appeared to diminish but little in girth for twenty feet. There it branched into four parts, each a fine tree. The others were nearly 9 feet in girth. One of the Acacias (*A. melanoxylon*) rivals the Bluegums in the rapidity of its growth and the straightness of its stem ; but its wood is not as durable as that of another Wattle tree which usually refuses to grow straight. It is easy to make a grove of Wattle trees anywhere on these hills above six thousand feet, and probably they will flourish much lower. The site for a grove of Wattle trees should be one where they are to be allowed to remain permanently. For it is most difficult to eradicate some of them when once established. Every twig of the roots of *A. dealbata* for instance will send up a shoot, and each shoot will strive to become a tree.

There are some fine natural groves besides the Kodaikānal, although most of the surface of the Upper Palanis is covered with grass, with only here and there a few scattered Rhododendron trees (*R. arboreum*).

Descending from Kodaikānal towards the east, at about the 8th milestone, we reach what is now called the Neutral Saddle. This is a low ridge dividing the waterflow, and uniting Permal-malai, the monarch of the Palani Hills, which rises to the north, with Palmalai which rises to the south of

this pass. There was once a village here called Kowaji, but as deserted years ago when cholera swept away the villages; and now, without an old inhabitant would be hard to find its site. Colonel trace for the new road and is superintending, has built a small house on the Saddle trees and other trees around it. When the will naturally grow up there.

mál and the Neutral Saddle to the east, Entering them from the west, one begins to dispute possession with the grow on the sides and on the tops of ten miles, however, excepting narrow strips the trees are small. After that in Pani-, Periûr, &c., excepting the clearings for and agriculture, the surface is covered with Some of the trees are immense. Even the slopes the Lower Palanis that descend to the plains, though they are often very steep and in some places precipitous, (as are the slopes of all the Palanis.) are covered with a thin growth of small trees. The new road descends regularly from Panikádu to the plain and will be carried from the base of the hill to Battágûndû which is eleven miles from Amanaikanur, the nearest railroad station. The grade in no part exceeds 1 in 17, and is usually less than that. After reaching the general level of the Lower Palanis, the new road winds along the spurs of the long hill that stretches on east from Permál, sometimes descending for half a mile, but on the whole ascending till, within about ten miles of Kodaikānal, the grade begins to ascend regularly and continues to do so until the top of Mount Nebo is reached.

The zig-zag bridle path now in use for ascending the east side of the Palanis to Kodaikānal, begins at "the Tope," which is five miles north-west from Periakulam and 12 miles east from Kodaikānal. Its turns are too sharp to allow of carts going up. The few wheeled vehicles now in use at the Sanitarium were brought up in pieces by coolies.

The new road is ready for use as far as Shemiganûr, or about four miles. When the rocks that encroach on it at some places shall have been removed, and two bridges shall have been built, it will be ready for use four miles further, to the Neutral Saddle. The lower part is as yet a mere bridle path, and in some parts of the first climb, a great deal of blasting will be required to carry the road past precipitous patches of granite that crop out and monopolize the hill side. Years may elapse before the road will become passable for carts.

I followed the trace up. Leaving the South India Rail-
road at Amanaikanûr, I travelled by Bandy seventeen
eighteen miles, passing through Battagûn
hill. From there coolies took my lugg
afoot. It was hard work for the coolies
to climb up or go down around masses of
been blasted sufficiently to allow of ou
the trace. The trees on the hill side w
ing, and but few of them were in fruit,
birds till we reached the large trees b
Panikádu. There was here and there a
(*O. ceylonensis*), or a small flock of cat
malabaricus). Soon after reaching the large
birds quarrelling attracted my attention.
colored and wishing particularly to make a n
quaintance, though he was so high up that I
tation of bringing him down, I fired at him. Be
he fell towards me and I was delighted to see he wa
(*Harpactes fasciatus*). I stood ready to lay hold of the prize
But having a little use of his wings he took a slant down the
hill side and went down so far that all our efforts to find him
proved vain, and at last the search was reluctantly given up.
This was the first failure to retrieve a valuable specimen from
being unable to find it in the bushes and grass of the hill sides,
but it was not the last. In some places, for all the care taken
to shoot birds only when they would fall in accessible places,
not half of those shot were found.

After leaving the river in the stunted jungle on a hill side, I obtained two males and a female of *Irena puella* and a *Tephrodornis sylvicola* and they were the only specimens of those species that I secured during my stay on the Palanis. I shot two others of the same Wood Shrike, but they fell among high grass, and every effort to find them proved unavailing. I also observed *Irenas* frequently afterwards, but always at such a distance that they were off across some gorge to another high tree half a mile away, before I could get within range.

From the Panikádû River to the Neutral Saddle the trace is so well cleared that there is a fair bridle path. It winds along through the scattered jungle and the high grass, passing now and then through a small grove of large trees that is watered by one of the several streams that flow across it. Birds are not abundant among the stunted trees. But they are the home of *Artamus fuscus, Picus mahrattensis, Yungipicus gymnopthalmus, Megalaima viridis, Hemipus picatus, Leptocoma minima, Munia punctulata, Drymoica inornata, Dumetia al-*

bogularis and so on, and the groves by the streams shelter *Copsychus saularis*, *Hypsipetes ganeesa*, *Eulabes religiosa* and the [illegible]s. Where there is cultivation, *Acridotheres* [illegible]*nsis*, with possibly a few *Turtur cambayensis*, [illegible]*rorhyncha* are to be found. There was [illegible] I did not obtain, but supposed it to be [illegible]*s*.

[illegible]ds welcomed me at the Neutral Saddle. [illegible] a picnic and for climbing Permál. In [illegible]arted for Kodaikànal and soon reached the [illegible]he steep hill sides and fills the gorge through [illegible]baki River flows. This river is formed from [illegible]ng from "the Lake" and another from Shemi- [illegible]eives frequent brooks from the hill sides. It [illegible]he north along the western base of Mount [illegible]s the Shunmoga River near the town of Palani. [illegible]les over the rocks in cascades and by them you [illegible]ar and see *Myiophonus Horsfieldi*, though he dashes [illegible]at the slightest warning. In this grove also *Tro-* [illegible]*eron Fairbanki*, *Merula simillima*, *Eumyias albicaudata*, [illegible]*chromela nigrorufa* are found, and it seems to be their [illegible] limit. As we passed, a noisy flock of *Hypsipetes ganeesa* [illegible]across the road, often stopping a moment on the tops of [illegible]n trees and then hurrying on. Three or four *Pericrocotus* [illegible]*ammeus* glittered on a tree down the hill side. A few *Hirundo javanica* were hawking by a high bank and some *Pratincola bicolor*, and *Pipastes montanus* were singing in the grass above it. All this gave pleasant promise for future collecting, and I reached Kodaikànal in the best spirits.

I was allowed only a five weeks' stay *this* time on the Palanis, and did not have as good success in collecting as I expected. I found it difficult to retrieve the birds shot in the groves, because of the thick underbrush and the dead leaves. On the hill sides, even when the spot where a bird fell was carefully marked with the eye, it often proved impossible to find it among the high grass and bracken. Still I send a list of such species as I procured, or certainly identified, during one or other of my visits of these hills as a contribution to our knowledge of the Avifauna of Southern India, hoping that it may be of some little use until some one obtains the materials for a more complete one.

List of Species.

2.—Otogyps calvus, *Scop.*

Observed rarely at the base of the hills.

4.—Gyps indicus, *Scop.*

As in preceding.

6.—Neophron ginginianus, *Lath.*

Observed up to 5,000 feet elevation.

17.—Cerchneis tinnuncula, *Lin.*

Observed at Mount Nebo, 7,000 feet elev
of June. I think the Kestrel resides perm
of the Palanis.

32.—Neopus malayensis *Reinhw.*

Observed three at different places in the Lo
about 4,000 feet, beating back and forth throu
They were circling slowly, just above the tree
instance came near enough to allow of a shot.

39 *bis*.—Spilornis melanotis, *Jerd.*

Observed only one pair. They were high in the a
their loud peculiar cry which can be heard for two miles a
could not be mistaken.

55.—Haliastur indus, *Bodd.*

Abundant about tanks and ponds near the base of the Hi
and observed up to 4,000 feet.

56.—Milvus govinda, *Sykes.*

I did not notice one above 3,000 feet, though they were common at the base of the Hills.

72.—Ketupa ceylonensis, *Gm.*

A pair in the grove on the top which is called the Kodaikânal began their moaning calls each evening soon after sunset; but, I was unable to find them. I shot one in the same grove, in April 1867.

*** 83.—Hirundo javanica,** *Sparrm.*

Obtained on the top, and also at Shemiganûr, 5,500 feet.

Kodaikânal, 21st June.—Length, 4·8; wing, 4·0; expanse, 10·5; tail, 2·0; tarsus, 0·4; bill from gape, 0·6; weight 0·44 oz. Iris very dark; bill black; feet reddish black. Wings extend when closed, 0·7 beyond end of tail.

* At Mr. Fairbank's request I have filled in and corrected the nomenclature throughout the list, and in the case of species to which a * is prefixed I have examined the specimens and have verified or corrected the identifications. I have also corrected the names in the preceding introduction to correspond.—Ed., S. F.

100.—Cypselus affinis, *Gray*.

Observed at 3,000 feet a dozen or so, hawking just above the tree tops. But the bird is evidently rare about the Palanis at this season.

102.—Cypselus batassiensis, *J. E. Gr.*

Observed about Palmyra trees in Periakulam, near the Eastern base of the Hills.

104.—Dendrochelidon coronata, *Tick.*

Obtained the only one seen, at the Eastern base. It was young and the feathers of the head and back were mostly dull grey or ashy. A few shining greenish blue feathers of the adult plumage had begun to show themselves.

* 112.—Caprimulgus asiaticus, *Lath.*

Obtained one specimen on the Eastern base, and it was the only Night-jar I saw during my five weeks' stay on the Palanis, [illegible] I hear their calls in the night. I am at loss to account for this paucity of Night-jars.

[illegible]5.—Harpactes fasciatus, *Gm.*

[illegible]hile on my way up by the trace of the new road, at 3,500 [illegible], I shot a Trogon, but he struggled in falling and went so far down the hill side that we were unable to find him. The next I saw was a female at the Eastern base of the Hills. She was sitting on a branch near the ground, and remained so entirely motionless that I looked sharply to be sure that it was a bird at all. The examination convinced me that it was a Trogon, and I took such care to avoid another failure, that her tender skin was much torn by the shot. I saw but one more and bagged him. He was sitting quietly on a high tree, at about 5,000 feet. He fell down plump. But the place was steep and covered with large dry leaves. One would think, on looking at his glowing rosy red breast and white-edged tail and blue bill, that he must be easily found. But three of us looked for a long time among the leaves and were about to give up the search as strangely in vain, when he was found a little beyond the limits in which we had expected to find him. He lay back up and looked very much like one of the leaves. I think that practice would teach one to find Trogons, and to distinguish them, even when sitting motionless in the dark shade, simulating dry leaves; and then they would seem more plantiful.

♂ *Shemiganûr, 1st June.*—Length, 12·5; wing, 5·0; expanse, 16·0; tail, 7·0; tarsus, 0·6; bill from gape, 1·1; weight, 2·4oz. Bill and orbit delicate small blue; feet a lighter but similar blue;

iris dark reddish-brown, when the bird was skinned. I carelessly omitted to note the color of the iris when the bird was shot.

♀ *Vengayam Parry, 28th May.*—Length, 12·0; wing, 5·0; expanse, 15·75; tarsus, 0·6; tail, 7·0; bill from gape, 1·0; weight, 2·5oz.

117.—Merops viridis, *Lin.*

Plenty at the base of the Hills and in the adjacent plains.

118.—Merops philippinus, *Lin.*

I found this bird abundant in October 1866, by the town of Palani, near the North base of the hills. During this visit I observed them only once. They were on some dead trees in a coffee plantation at Periûr.

119.—Merops leschenaulti, *Vieill.*

This bird was common in 1866, on the Eastern side of the hills at 2,000 or 3,000 feet, but this year I saw it only once, and the one I shot falling among high grass, was not recovered, t[illegible] I had carefully marked the spot where it fell.

122.—Nyctiornis athertoni. *Jard and Selb.*

In December 1866, I obtained this bird at the head of [illegible] Kambam Valley which skirts the Palanis along their sou[illegible] eastern base. I also observed a pair at Periûr on the Lowe[illegible] Palanis in March. But this year I was unable to find it anywhere.

123.—Coracias indica, *Lin.*

There were rollers still, about the Eastern base of the hills when I came away in the end of June. This surprised me, as the bird leaves the Dakhan before the middle of April.

127.—Pelargopsis gurial, *Pears.*

On two occasions this bird dashed by me as I was working my way through thickets by a stream at the Eastern base. It was probably the same individual, and both times I was unable to flush it again.

129.—Halcyon smyrnensis, *Lin.*

Observed at Periûr in the Lower Palanis.

144.—Ocyceros bicornis, *Scop.*

In October 1876, I obtained the *Irawache*, as the Tamil people call it, in the avenues by the town of Palani. I had not time this year to visit Palani and did not find the bird anywhere else.

145.—Tockus griseus, *Lath.*

In 1867, at the Eastern base of the hills I bagged a Tockus from a small flock that was on a low Ficus tree. They were scrambling along the branches and feeding on the fruit. The specimen was sent to America. I was not then aware that grey Hornbills are somewhat mixed up and need careful discrimination. I made special efforts this year to find the bird again; but they were vain. I did not observe a Hornbill of any kind during the five weeks I was ranging the hill sides and searching the groves, ever on the watch for them.

148.—Palæornis torquatus, *Bodd.*

Common around the base and sometimes ascending the hill sides.

149.—Palæornis purpureus, *P. L. S. Müll.*

More common on the hill sides, up to 4,000 feet, than *P.* [illegible].

[illegible] Palæornis columboides, *Jerd.*

[illegible]n seen and oftener heard on the Lower Palanis and [illegible] the hill sides. But as they particularly affect the highest [illegible]s and remain but a short time on a tree, it is not easy to secure specimens. I intended to make them a specialty till I had secured several good specimens. But whenever I saw or heard them something else claimed precedence, and at last I came away with only one poor skin.

153.—Loriculus vernalis, *Sparrm.*

At the Eastern base I noticed them several times on the wing, and once seeing a bright coloured one feeding on a tree, I wasted the last cartridge I had with me in a vain attempt to secure him. I was the more vexed at the failure because I did not see another and was desirous of getting one to show that it was really *vernalis* I had observed. However the bird is so peculiar as to be at once recognized on the wing, and one who has once seen it hanging to a bambû, head down, its ruby rump-patch in its green setting shining in the sunlight, will be sure to know it when seen afterwards in a similar position.

[illegible]160.—Picus mahrattensis, *Lath.*

[illegible]took but a pair, as we have them in the Dakhan. They [illegible]e not uncommon up to 5,000 feet.

*** 164 *bis*.—Yungipicus gymnopthalmus, *Blyth*.** S. F., III., 60.

Obtained one and saw another at Machûr on the road between the Lower Palanis and Kodaikânal.

♂ *Machûr, 14th June*.—Length, 4·7; wing, 2·9; expanse, 9·3; tail, 1·4; tarsus, 0·6; bill from gape, 0·7; weight, 0·5oz. Iris dark; orbit purple; bill greenish dusky; feet olive.

*** 166 *bis*.—Chrysocolaptes delesserti, *Malh*.** S. F., III., 64.

This fine bird ranges the Palanis from top to bottom, and is so noisy as to be easily found. Its skin, however, is so tough that it will often survive the best directed shot and go off apparently unharmed. Then in a little while it will begin hammering and cackling again on some old tree a quarter of a mile away. Perhaps 181 may be more abundant among the large trees of the Lower Hills, but on the whole this is the most common Woodpecker on the Palanis.

*** 171.—Gecinus striolatus, *Blyth*.**

Obtained but one at 4,000 feet.

♀ *Periûr, 15th June*.—Length, 10·2; wing, 5·0; exp[illegible] 16·0; tail, 4·0; tarsus, 1·0; bill from gape, 1·4; weight, 3[illegible] Iris dark red (when skinned); legs dusky blue; upper mandible almost black, lower, dusky horny. There are twelve rows of small white spots across the wing when expanded, and I do not understand why nothing is said of this in Jerdon's description.*

*** 175.—Chrysophlegma chlorophanes, *Vieill*.**

Obtained a male near Periûr.

181.—Brachypternus puncticollis, *Malh*.

Abundant on the Lower Palanis, in the heavy forest.

*** 194 *bis*.—Megalæma viridis, *Bodd*.**

This Green Barbet is found in the groves on the top of the Palanis and also among the trees at their base. It was particularly abundant in June among the large trees of the lower Hills, as several kinds of trees were loaded with fruit. This Barbet much resembles the one we have called *M. virdisi*

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* Jerdon says the upper surface resembles that of *squamatus*, and in the d[illegible] tion of that species, the spots on the outer webs of the primaries are referre[illegible] Ed, S. F.

which lives at Mahàbaleshwar and Kandala. But its dimensions are larger.*

Kodaïkànal, 12*th June*.—Length, 9·1; wing, 4·2; expanse, 13·5; tail, 3·2; tarsus, 1·15; bill from gape, 1·5; weight, 2·9oz. Iris hazel; feet olive with sole ochre yellow; bill dusky yellow horn color.

♀ *Machûr*, 13*th June*.—Length, 9·4; wing, 4·1; expanse, 14·0; tail, 3·2; tarsus, 1·2; bill from gape, 1·5; weight, 2·75oz.

197.—Megalæma hæmacephala, *Müll.*

Common at base and up to 4,000 feet. I do not remember to have ever heard the Coppersmith in the groves on the top of the hills.

205.—Hierococcyx varius, *Vahl.*

Common at the base and on the hill sides. The Natives, who eat game, regard this as excellent for food. So I tried one, but found it intolerably strong flavored. As it eats lizards as well as insects; one ought not to expect it to be good eating.

214.—Eudynamys honorata, *Lin.*

Observed a few times. It is not as common as 205.

* 216.—Zanclostomus viridirostris, *Jerd.*

Obtained a female only, of the four I saw at different times in the thickets at the Eastern base of the hills.

* 217.—Centrococcyx rufipennis, *Ill.*

Took one at the base and observed it up to 5,500 feet.

* 224.—Arachnothera longirostra, *Lath.*

Obtained a pair near Periûr at 4,000 feet. I saw no others. The bill of this species is proportionally very long and its tongue is extensile like that of a Woodpecker, and can be forcibly thrust out 2 or 3 inches beyond the tip of its bill.

This enables the bird to gather insects in flowers that have long tubular necks. The measurements of the male and female were alike, as follows:—

♂ and ♀ *Tandigûdi*, *Lower Palanis*, 16*th June*.—Length, 6·0; wing, 2·8; expanse, 8·2; tail, 1·8; tarsus, 0·7; bill from gape, 1·4; weight, 0·45 oz. Upper mandible leaden black; lower mandible dusky leaden; iris dusky yellow; feet dusky leaden.

* They do not seem to me a bit larger. See table of measurements of wings of this species from all parts of Southern India.—S. F., IV., 391.—Ed., S. F.

These dimensions, excepting the length of the bill, are uniformly larger than those given by Jerdon.

* 232.—Cinnyris zeylonicus, *Lin.*

Obtained a pair at the Eastern base of the hills and observed a few others. Probably they are more abundant around gardens in the plain.

[Specimen of a young female, undoubtedly of this species, measured in the flesh as follows :—

Length, 3·9; expanse, 6·2; wing, 2·0 (in the skin, 1·95); tail, 1·3; tarsus, 0·65; bill from gape, 0·6; weight, 0·38 oz., and had the bill dusky black; the gape reddish; the legs and feet blackish olive. It has the whole upper surface brown with an olive green tinge; quills light hair brown, for the most part *very* narrowly tipped and margined towards the tips with brownish white, and the central and basal portions of the outer webs of all but the first few primaries, more broadly margined with olive brown; upper tail-coverts blackish; tail blackish; the exterior feathers on either side paler brown and tipped with brownish white.

Entire under parts pale, slightly greenish yellow, a little brighter on the breast; wing lining white.

I have never seen a specimen of this species exactly in this stage. This one was shot on the 6th June at Periakulam, Palanis.

The bird is no bigger than a *S. minima*, the bill is just the same length as in adults of that species; the wing is not longer than that of a fine adult of *minima*, and but for the coarser character of the bill, which is not near so attenuated towards the point, and for the white tippings to the outer tail-feathers, any one would, I think, rather assign it to *minima* than to *zeylonica*.—Ed., S. F.]

* 233.—Cinnyris minimus, *Sykes.*

I found this species common from 4,000 feet elevation to the top of the hills. They were in their summer dress. The males lacked the glossy green cap and amethystine throat and neck. Their caps, napes, and a little of the back were colored olive green. But the color was a little brighter than that of the same parts in the female. The throat and neck were yellow with an olive tinge, brightening into a purer yellow on the breast and abdomen. The scapulars and the back between the wings were bright maroon red. The rump was covered with glossy metallic amethystive just as it is in the nuptial dress of*

* The time at which the breeding plumage is assumed varies much in different localities.—Ed., S. F.

February and March, and the wings and tail were brown as at that time. The female too in her summer dress retains the sanguine red patch on her rump that she has in her nuptial moult. The males of other *Nectarinæ* seem to mostly monopolize the bright colors. But the female of this species possesses the red patch throughout the year.

234.—Cinnyris asiaticus, *Lin.*

Common at the base of the hills and on the plains.

* 235.—Cinnyris lotenius, *Lin.*

I obtained but one, a male, at the Eastern base of the hills, and did not see another during my stay.

* 238.—Dicæum erythrorhyncha, *Lath.*

Common in the adjacent plains and sometimes observed on the hill sides.

* 239.—Dicæum concolor, *Jerd.*

A kind of *Loranthus* has found most congenial quarters on one of the Wattle trees (*Acacia melanoxylon*) that has become naturalized at Kodaikànal. It has become so abundant in certain localities* as to greatly injure and even kill the trees on which it is parasitic. Where it most abounds I found *Dicæum concolor* in considerable numbers—gathering its food from the tubes of the *Loranthus* flowers. It seemed to confine its attentions entirely to the parasite. In my notes I find the measurement of two specimens, but both are females, and all the items are identical.

♀ *Kodaikánal, at 7,000 feet, 31st May.*—Length, 3·6; wing, 2·1; expanse, 6·3; tail, 1·0; tarsus, 0·55; bill from gape, 0·5; weight, 0·25 oz. Iris, dark brown; bill, plumbeous; feet, black.

* 253.—Dendrophila frontalis, *Horsf.*

This pretty bird is found wherever there are trees on the Palanis. I obtained it at the bottom and on the top.

254.—Upupa epops, *Lin.*

One Hoopoe that I shot was of this species, but some that I only observed seemed so small that I do not hesitate to add.

255.—Upupa nigripennis, *Gould.*

Observed on the Lower Palanis.

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* Even more so on the Nilgheris, where it is playing havoc with all the finest *A. melanoxylons*—Ed., S. F.

*** 257 *bis*.—Lanius caniceps, *Blyth*.**

This bird lives through the year on the top of the Palanis and breeds there. I found a nest with five eggs when there in 1867, but have not the notes then made about it. The dimensions of two birds that I measured in the flesh are a little different from those given in Jerdon's Birds of India.

Shemínganur, 1*st June*.—Length, 9·3; wing, 3·8; expanse, 12·0; tail, 5·0; tarsus; 1·2; bill from gape, 0·9; weight, 1·5oz. Bill and feet plumbeous black.

♀ *juv*.—*Kodaikánal*, 9*th June*.—Length, 9; wing, 3·8; expanse, 11·5; tail, 5·0; tarsus, 1·2; bill from gape, 1·0. Upper mandible, black; lower mandible black at tip, with basal half dusky; feet, olive black.

*** 264.—Tephrodornis sylvicola, *Jerd*.**

Obtained only one, as two others I shot were lost in the high grass. They were on the stunted trees of the west part of the Lower Palanis at 4,500 feet.

[*265.—Tephrodornis ponticeriana, *Gm*.

Amongst the specimens received from Mr. Fairbank was a young specimen of this species procured on the 7th of June on the east of the Palanis towards their base.—A. O. H.]

267.—Hemipus picatus, *Sykes*.

Obtained one on the Lower Palanis in the thin jungle, but observed very few.

268.—Volvocivora sykesii, *Strickl*.

Obtained only one, a male, at Periûr.

270.—Graucalus macei, *Less*.

The only one I saw near Periúr was on a high tree, and did not fall to my shot, nor allow me a second opportunity.

***272.—Pericrocotus flammeus, *Forst*.**

Found from the bottom to the top of the hills, usually affecting high trees and fond of mounting a little above them so as to spread out and fully exhibit their gorgeous plumage.

♂—*Neutral Saddle*, 1*st June*.—Length, 8·1; wing, 4·0; expanse, 11·3; tail, 4·0; tarsus, 0·7; bill from gape, 0·9; weight, 0·92 oz. Bill and feet black; iris hazel. This is noted doubtful, as the color was not noted till the bird was skinned.

♀—*Neutral Saddle*, 1*st June*.—Length, 8·1; expanse, 11·0; wing, 3·8; tail, 4·0; tarsus, 0·7; bill from gape, 0·85; weight, 0·92 oz.

276.—Pericrocotus peregrinus, *Lin.*

Less abundant than 272, and I did not observe it above 5,000 feet elevation.

278.—Buchanga albirictus, *Hodgs.*

Common at the base of the hills, and in the adjacent plains.

281.—Buchanga cœrulescens, *Lin.*

Obtained in the Lower Palanis, and seen on the hill sides in other places.

*** 282.—Chaptia ænea,** *Vieill.*

This is the most common of the Drongo-shrikes at the base of the hills, and up to 5,000 feet.

***285.—Dissemurus malabaricus,** *Scop.*

I observed several adult birds of this species, though I failed to bag one. I obtained a pair of young ones with their crests fairly developed; but their long tail-feathers had not appeared.

287.—Artamus fuscus, *Vieill.*

Obtained in the thin jungle at 4,500 feet on the Lower Palanis.

288.—Muscepeta paradisi, *Lin.*

Observed a single young one at the base of the hills. But they are said not to be uncommon at some seasons of the year.

292.—Leucocirca aureola, *Vieill.*

Found up to 4,000 feet.

295.—Culicicapa ceylonensis, *Sw.*

Obtained in the Kodai grove at the top, where it is common, as well as in groves lower down.

***297.—Alseonax latirostris,** *Raffl.*

Obtained one, but it seems rare on the Palanis as well as in every locality in which I have collected.

300.—Ochromela nigrorufa, *Jerd.*

Observed in the groves at the top of the Palanis as well as at Shemiganur, 5,500 feet elevation. It is difficult to see this little bird in the dense thickets it inhabits at a distance sufficient to shoot it without tearing it to bits. I shot two, sitting away as far as I could, and still see them before firing, and though I used a charge of only 20 grains of powder

with the same bulk of No. 12 shot, or what might be called a quarter charge, I destroyed both specimens.

302.—Stoporala albicaudata, *Jerd.*

This noisy little Blue-bird has become a rather abundant inhabitant of the thickets of the Kodaikánal and other groves from 5,000 feet to the top of the hills. I obtained adults of both sexes and also full grown young ones, in bluish olive plumage, the feathers being tipped with yellowish, so as to give the bird a spotted appearance similar to that of a young black bird.

♂—*Kodaikánal, 8th June.*—Length., 6·0 ; wing, 3·3 ; expanse, 10·0 ; tail, 3·0 ; tarsus, 0·8 ; bill from gape, 0·7 ; weight, 0·92 oz. Bill and feet, black ; mouth, dusky black ; iris, very dark brown.

♂—*Kodaikánal, 1st June.*—Length, 6·0 ; wing, 3·1 ; expanse, 9·8 ; tail, 2·7 ; tarsus, 0·8 ; bill from gape, 0·7 ; weight, 0·75 oz. Bill and feet, black.

♀—*Kodaikánal, 1st June.*—Length, 6·0 ; wing, 3·1 ; expanse, 9·8 ; tail, 2·7 ; tarsus, 0·8 ; bill from gape, 0·7 ; weight, 0·8 oz. Bill, black ; feet, leaden black, of a lighter color than those of the male.

(?)—*Kodaikánal, 21st June, (sex not noted)*—Length, 5·8 ; wing, 2·9 ; expanse, 8·8 ; tarsus, 0·8 ; bill from gape, 0·7 ; weight, 0·75 oz.

*305 & 306.—Cyornis tickelliæ, *Blyth.*

Took one and observed it unfrequently from top to bottom of the hills.

*339 *bis.*—Callene albiventris, *Fairbank, W. T. Blanford.* P. Z. S., 14th Nov. 1867, Pl. xxxix.*

I obtained one pair in 1867 with their nest and two eggs all in the Kodai grove on the top of the Palanis. They were described by Mr. Blanford in the Proceedings of the Zoo, and afterwards they were figured in Gould's Birds of Asia. I am not aware that additional specimens have been obtained since, until I found them in the same locality again in May and June this year. They live in the thickets of the Kodaikánal, and I obtained one in another grove at the "Pillar Rocks." As May is their nesting season, and they indulge in a sweet song in the evening twilight, it is not difficult to trace them, though it is difficult to see them in the thickets far enough away to allow of shooting them without tearing them to pieces. But sometimes they come out of the thickets in t

* This plate shows a great deal more white on the abdomen than app in the specimens now sent me by Mr. Fairbank.—Ed., S. F.

dusk and sit by a bank or on the road side and sing. Their song is not so loud nor so varied as that of the black bird (*Merula simillima*) which lives in the same groves, but it is similar in style and in the quality of its tone. The sexes are similar in size, (?) and color, and the dimensions of a male are as follows :—

♂ *Pillar Rocks, 24th May.*—Length, 6·75 ; wing, 3·6 ; expanse, 10·0 ; tail, 2·5 ; tarsus, 1·1 ; bill from gape, 0·9 ; weight, 0·92oz. Bill, black ; iris buff ; feet, leaden black.

[I make the tail of this specimen 2·8 and the wing (or rather both wings, for I have measured both) 3·2, other dimensions agree. The female sent to me is markedly smaller,—wing, 2·85 ; tail, 2·5 ; tarsus, 1·0 barely. I subjoin* the original description.—Ed., S. F.]

342.—Myiophonus horsfieldii, *Vig.*

Not rare where there is running water, from the bottom to 5,000 feet, but being very wary is not easily obtained.

—Merula simillima, *Jerd.*

fine singer may be heard any evening in spring, in odaikànal and other groves above 4,000 feet on the ls.

Shemiganur, 1st June.—Length, 10·7 ; wing, 5·2 ; expanse, 0 ; tail, 4·5 ; tarsus, 1·3 ; bill from gape, 1·3 ; weight, 3·0 oz. Bill inside as well as outside and the orbits vermilion orange ; feet yellow orange ; iris, hazel.

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* "Callene albiventris, *Fairbank.*

Fusco-cyanea, mento lorisque holosericeo nigris, fascia frontali albescenti cærulea, rectricibus remigibusque fuscis cerulescenti marginatis, abdomine medio albo, lateribus cinerascentibus, rostro nigro, pedibus fuscis, iridibus brunneis.

"Long. tota 6 ; alæ 3·1 ; candæ 2·6 ; rostri a fronte 0·5 ; a rictu 0·75 ; tarsi, 1·1 ; poll Angl. et dec.

"Hab. Montes Pulney dictos Indiæ meridionalis, ad alti. circa 6000-7000 ped. Angl. in dumetis et sylvis.

"*C. albiventris* is similar in form to the Nilgheri *C. rufiventris*, Blyth, but it is rather smaller and differs widely in colour, being much bluer above, with a distinct light-blue, almost whitish, frontal band, instead of the faint indication which alone exists in *C. rufiventris*. There is no trace of the ferruginous abdomen of that species ; and the white in the new species is not, like the rufous colour in *C. rufiventris*, spread over the whole lower parts from the breast downwards, but is almost confined to the centre of the abdomen and the lower tail-coverts, shading gradually into slaty on the flank.

"*C. frontalis*, Blyth, of the Sikkim and Nipal Himalayas, is a still larger bird than *C. rufiventris*, with a longer tail. The frontal band is of a darker and richer blue than in *C. albiventris* and the abdomen is grey. The blue of *C. albiventris* is purer and less dusky than that of either of the two other species, and, so far as can be judged by the somewhat faded specimens in the Asiatic Society's Museum in Calcutta, resembles rather the colour of *Brachypteryx cruralis*.

"The sexes do not appear to differ. In the two specimens sent by Mr. Fairbank the female is a little the paler ; but this appears due to the male being in brighter and fresher plumage."—P. Z. S., 1867, 833.

(?) *Kodaikanal, 24th May.*—Length, 10·0; wing, 4·8; expanse, 14·0; tail, 4·0; tarsus, 1·35; bill from gape, 1·25; weight, 3 oz.

389.—Alcippe poiocephala, *Jerd.*

Observed in wooded ravines on the hill sides. When at the Palanis before I collected some specimens and found that they differed somewhat from those I had collected at Mahabaleshwar. But on comparing a larger series it appeared that the differences were not constant or essential.

[* 398.—Dumetia albogularis, *Blyth.*

A nestling from the Lower Palanis obtained in June.—Ed., S. F.]

899.—Pellorneum ruficeps, *Swa.*

I heard the merry notes which I know well of this Laughing Babbler frequently, but did not succeed in getting a sight of the bird.

404.—Pomatorhinus horsfieldii, *Sykes.*

This bird did not seem abundant on the hills in June, judging from the infrequency of its bell-like calls. I intended to procure a series of this species, but the only one I could get a shot at, escaped our search. It was in the Kodaikànal.

* 424 *bis.*—Trochalopteron fairbanki, *Blanford,* (described, S. F. III., 413.)

When I found this bird in 1867, thinking that a bird so common as it is above 5,000 feet on the Palanis, must have been known to Dr. Jerdon, and so that his description of *T. jerdoni* must be at fault in some particulars as his description *T. cachinnans* is, I called it *T. jerdoni.* But Mr. Blanford on seeing the specimens was sure that it was not *T. jerdoni* and he described it.* It is abundant at the Sanitarium, and though its calls are of great variety and vivacity and do much to enliven the quiet place, the bird is not liked. It is too fond of peaches and raspberries. It is so strong on its legs, that one generally fails to recover those shot in the grove unless they are so filled with shot or torn as to be poor for skinning. It is necessary to shoot several, in order to secure a nice specimen.

* I am not aware whether it has ever yet been compared with true *Jerdoni*, a species I have not as yet obtained.—Ed., S. F.

♀ *Shemiganur, 23rd May.*—Length, 8·8; wing, 3·3; expanse, 10·0; tail, 4·0; tarsus, 1·4; bill from gape, 1·0; weight, 1·6 oz.

* 43[illegible]—**Malacocircus malabaricus**, *Jerd.*

Common at the base and in thin jungle on the sides of the hills, up to 4,500 feet. I ought to have collected and measured more of them. The dimensions of the only one, a male, that I obtained were as follows:—

♂ *Vengayam Parry, 1st June.*—Length, 10·0; wing, 3·9; expanse, 12·5; tail, 4·0; tarsus, 1·5; bill from gape, 1·0; weight, 2·4 oz. Iris, light straw color, almost white; bill and legs, yellowish dusky.

* 438.—**Chatarrhæa caudata**, *Dum.*

Plenty at the base of the hills.

* 445 & 446.—**Hypsipetes ganeesa**, *Sykes.*

In groves both at the top of the hills and on the Lower P[illegible] They affect the highest trees, and, in June, were found [illegible] noisy flocks of twenty or thirty each.

[illegible]*iganur*, at 5,000 *feet*, 1*st June.*—Length, 9·5; wing, [illegible]xpanse, 14·0; tail, 4; tarsus, 0·75; bill from gape, 1·1; [illegible]t, 1·75 oz. Bill, orange vermilion; feet, orange yellow; [illegible]hazel, dyed with lake red.

450.—**Criniger ictericus**, *Strickl.*

From 4,000 feet to the top, in small flocks.

452.—**Ixos luteolus**, *Less.*

This bird is common at the East base of the hills and is very noisy in the morning, but it remains hid in or among thick bushes, and so it is difficult to obtain good specimens.

455.—**Rubigula gularis**, *Gould.*

I found this bird by Vengayam Parry in 1867, and kept a specimen for a while, but it long ago went into other hands. This year I was unable to find one, and I think it likely that it visits the Palanis during a part of the year only.

460 *bis.*—**Otocompsa fuscicaudata**, *Gould.*

This is the most abundant bird on the tops of the hills, just as it is at Mahabaleshwar, and it is found to the bottom.

* 462.—**Molpastes hæmorrhous**, *Gm.*

This is more abundant at the bottom and in the adjacent plains, but is found at the top of the hills.

463.—Phyllornis jerdoni, *Blyth.*

Obtained at 4,000 feet in the Lower Hills.

468.—Iora typhia, * *Lin.*

Shot but one. It was at the base of the hills, and was in mature dress, with a black head.

469.—Irena puella, *Lath.*

Obtained at 3,500 feet in the lower hills, and observed from the base up to 4,000 feet.

*** 473.—Oriolus ceylonensis,** *Bp.*

This is found from the base up to 5,000 feet.

[Not in my opinion separable from *O. melanocephalus.*—Ed., S. F.]

475.—Copsychus saularis, *Lin.*

Found from the base up to 5,000 feet.

476.—Cercotrichas macrurus, *Gm.*

Heard the song of one at dusk in a thicket at the base of the hills.

[* 479.—Thamnobia fulicata, *Lin.*

East base of the Palanis. June.—Ed., S. F.]

[* 482.—Pratincola bicolor.

June. Kodoikânal, Top of Palanis.—Ed., S. F.]

530.—Orthotomus sutorius, *G. R. Forst.*

Observed at Shemiganûr at 5,500 feet.

*** 534.—Prinia socialis,** *Sykes.*

Obtained at 6,000 feet elevation on the grassy hill side.

[* 540.—Cisticola erythrocephala.

Although not included in his list, Mr. Fairbank sent me a specimen of this rare species, a male, shot on the 12th June on Mount Nebo of the Palanis at an elevation of 6,000 feet. He also observed, he informs me, two other specimens on these same hills.—Ed., S. F.]

543.—Drymoica inornata, *Sykes.*

Observed in the grassy fields from 5,000 feet to the top.

* Of course, those who separate the Southern Indian form would call this *zeylonica*, but see my remarks on the genus *infra*.—Ed., S. F.

* 598.—Pipastes montanus, *Blyth.*

Obtained in the grassy fields on the top of the hills at 7,000 feet, where it is common.

Kodaikànal, 30th May.—Length, 6·4.; wing, 3·1; expanse, 10·0; tail, 2·5; tarsus, 1·0; bill from gape, 0·7. Bill, blackish horny; legs, flesh color.

600.—Corydalla rufula, *Vieill.*

Obtained at the base of the hills and at 4,000 feet up.

* 631.—Zosterops palpebrosa, *Tem.*

Obtained on the Lower Hills, and in the Kodai grove at the top, where it is plenty.

648.—Machlolophus jerdoni, *Bly.*

Obtained in the Kodaikànal, but observed only a few of them.

660—Corvus culminatus, *Sykes.*

I do not remember to have seen this crow higher than the village of Vilpati, which must be at about 5,500 feet elevation.

663.—Corvus splendens, *Vieill.*

At the base. This crow does not seem to fancy mountain air.

674.—Dendrocitta rufa, *Lath.*

Obtained at 5,000 feet.

684.—Acridotheres tristis, *Lin.*

This is common around villages at 4,000 feet.

* 687.—Sturnia pagodarum, *Gm.*

Obtained at the base and observed well up the hill sides.

* 692.—Eulabes religiosa, *Lin.*

Obtained in different parts of the Lower Palanis at from 4,000 to 5,000 feet elevation.

♂ *Machur, 4,500 feet, 13th June.*—Length, 10·0; expanse, 18·0; wing, 5·8; tail, 3·0; tarsus, 1·2; bill from gape, 1·4; weight, 4·75 oz. Iris brown, fading out into grey; bill orange; feet and wattles lemon yellow.

♀ *Machur, 13th June.*—Length, 10·0; wing, 5·6; expanse, 17·6; tail, 3.0 tarsus, 1·2; bill from gape, 1·4; weight, 4·21 oz.

*** 699.—Munia punctulata,** *Lin.*

Observed in the thin jungle of the lower hills, but only twice, and but five birds in all. The two I obtained were both females.

♂ *Machur, 12th June.*—Length, 4·5; wing, 2·3; expanse, 7·0; tail, 2·0; tarsus, 0·6; bill from gape, 0·5; weight, 0·5 oz. Bill black; feet, light blue; iris dull red, or say red brown.

706.—Passer indicus, *Jerd. & Selb.*

Seems to come up only to the native villages at 5,000 feet.

*** 711.—Gymnoris flavicollis,** *Frankl.*

Obtained at Periakulam near the base, where it was plentiful.

[* 755.—Mirafra affinis, *Jerd.*

Obtained in June at the Eastern base of the hills.—A. O. H.]

760.—Pyrrhulauda grisea, *Scop.*

Obtained at Periakulam.

773.—Crocopus chlorigaster, *Blyth.*

Obtained in the avenues near the north base in October 1866, but I did not find it this year, though 775 came in flocks to feed on the jambul fruit at Periûr, and the people said that this was common there.

775.—Osmotreron malabarica, *Jerd.*

Obtained at Periûr. The fruit of a zizyphus was ripening, and they came in flocks to feed on it.

*** 786.—Palumbus elphinstonei,** *Sykes.*

Obtained both in the Kodaikànal at 7,000 feet, and on the lower hills at 4,000 feet. They were scarce in May, but came by the dozen in June to feed on some kinds of fruits that were then ripening in the Kodai grove, but they were so much persecuted by every one who could get hold of a gun, that they remained wary.

788.—Columba intermedia, *Strickl.*

Observed a flock by the fall of Levinge's brook. But this bird is not abundant on the Palanis.

794.—Turtur cambayensis, *Gm.*

Observed at the base and on the lower hills.

* 795.—Turtur suratensis, *Gm.*

The spe[illegible] is the most common dove both on the [illegible]de base.

[illegible]isorius, *L.*

[illegible] plains by the Palanis, but not so abundantly [illegible].

[illegible]ophaps indica, *L.*

[illegible]le of this lovely dove at Periûr, and observed

[illegible]*June*—Length, 10·5 ; wing, 6·0 ; expanse, 18·5 ; [illegible] 1·1 ; bill from gape, 1·0 ; weight, 6·25oz. Iris, [illegible] red ; feet, lake red ; eye orbits, dark purple.

[illegible]o cristatus, *Lin.*

[illegible]bserved at the Northern base of the hills.

813.—Gallus sonnerati, *Tem.*

Obtained at 5,000 feet and observed also at the base of the hills. They are much hunted, and, except in places, difficult of access, are rare on the Palanis.

814.—Galloperdix spadiceus, *Gm.*

I saw but one on the hills. It rose from a thicket where I was looking for *Callene* and *Ochromela*, and I had just time to see it was a Spur-fowl. I looked afterwards for it in vain.

822.—Ortygornis pondiceriana, *Gm.*

Observed at Periakulam.

828.—Perdicula erythrorhyncha, *Sykes.*

Obtained in the Kodaikânal.

832.—Turnix pugnax, *Tem.*

Observed in grain fields near the base of the hills.

867.—Scolopax rusticola, *Lin.*

I flushed a Woodcock in the Kodaikânal in 1867. Afterwards one was obtained there by Mr. Levinge; but they are certainly rare on the Palanis.

871.—Gallinago scolopacina, *Bp.*

872.—Gallinago gallinula, *Lin.*

Both these Snipes visit the Palanis in [illegible] season in small numbers, and are found at the west [illegible] in other swampy places.

929.—Buphus coromandus, *Bodd.*

Observed following cattle near the base of t[illegible]

930.—Ardeola grayi, *Sykes.*

By streams and ponds at the base of the hills[illegible]

932.—Ardetta flavicollis, *Lath.*

When collecting ferns below Vilpati, in t[illegible] 1867, I twice came upon a Black Bittern. I[illegible] the steep bank of the stream through the [illegible] took wing. I never saw the bird elsewhere, but [illegible] figure in Jerdon's Ill. Ind. Orn., Pl. 16, and at once re[illegible]

975.—Podiceps minor, *Gmel.*

This Grebe lives permanently in "the lake," at 7,000 feet. I obtained a nest with five eggs when there in 1867. The nest was on a mass of decaying rushes that was floating about.

This list is so incomplete that it is not worth while comparing the Avifauna of the Palanis so far as indicated by it with that of any other locality. I would merely call attention to *Callene albiventris* and *Trochalopteron Fairbanki*. They do not appear to have been found in any other locality. If found elsewhere, it is desirable that the fact be recorded.

Notes on Birds observed in the region between the Mahanadi and Godavari Rivers.

By V. Ball, M.A., F.G.S.

Before starting on my last season's geological tour I had great hope that the wide area over which I expected to travel would yield a large number of interesting and possibly some new birds.

The result has, however, fallen far below my anticipation. As a whole, the birds were of the same species as are found north of the Mahanadi. In the following notes but two or

three species are mentioned, which I have not already recorded from the Chutia Nagpur, Sambalpur or Orissa areas. What I have to say refers, therefore, chiefly to facts in reference to habits and distribution. Regarding the greater number of the species collected, there is nothing particular to record, and I simply retain a list of them, with a view to the possible preparation hereafter of a complete list of the Avifauna of the area.

The route traversed was as follows :—Leaving Cuttack I marched along the southern bank of the Mahanadi to Sonpur, in the Sambalpur district; thence I continued westwards across the so-called *Dakin Tir* towards Bodosamar, from which I turned southwards traversing Patna, Karial and Kalahandi. At the southern point of Kalahandi I ascended to the Jaipur Plateau by a steep and difficult ghât upwards of 1,000 feet high. From Jaipur I paid a flying visit to Bustar, the capital town of which, Jagdalpur, is situated on the same general stretch of plateau as Jaipur. I then turned northwards through Nowagarh to Raipur, and from Raipur marched to Nagpur, arriving there in about six months after the date of my departure from Cuttack.

Anything like a complete physical description of this extensive area would form an unsuitable prelude to the brief notes on the birds which follow. It will be sufficient to state here that the greater portion of the area is hilly, the highlands, including small plateaus, which rise to from 2,000 to 4,000 feet above the sea, with here and there, in the Eastern Ghâts, peaks that rise 1,000 feet higher. To a great extent the slopes of these hills and plateaus are clothed with a dense primary forest, which in certain places, especially towards the south, consists almost exclusively of magnificent Sal. Teak also occurs, but it is confined to very limited tracts. What the factors may be which have determined this limited distribution I am unable to say; but it is certainly not attributable to local peculiarities of geological structure or soil; separated by wide intervals, there are a few grassy plains which afford suitable feeding grounds for species of *Chætornis, Cisticola, Emberiza, Calandrella, Munia, Estrelda, Ploceus*, &c.

Except in the Dakin Tir of Sambalpur, tanks of sufficient size and number to attract birds are seldom met with, and the rivers during the dry season contain but little water. Hence it followed that I met with but few water birds.

Diurnal Raptores were very scarce, but of Owls I observed a good number of species. The most interesting bird in my collection belongs to this class. It is a male of the species first described by Mr. Hume under the title *Heteroglaux blewitti*.

56 *bis.*—Milvus melanotis, *Temm* et *Schl.* ? M. major, *Hume.*

I have already recorded the occurrence of this species in Chutia Nagpur. I have also shot it in Denkenal (Orissa) and in Sonpur and Kalahandi (Sambalpur). Towards the southern parts of Sambalpur and Raipur I frequently saw it, and in places it occurred apparently to the total exclusion of *M. govinda.*

70.—Bubo coromandus, *Lath.*

In Chutia Nagpur I only saw a domesticated individual of this species which was captured in Manbhum. Since then I shot a specimen in Talchin (Orissa.)

76 *bis.*—Heteroglaux blewitti, *Hume, S. F., Vol. I., p.* 467—8. *Sharpe Brit. Mus. Cat., Vol II.*

I have above mentioned that I obtained one specimen of this species. It was shot during the day time in a mango grove on banks of the Udet river in Karial, or about 150 miles to the south of the locality where the type and hitherto unique specimen was shot by Mr. Blewitt.

From the descriptions of the type, my specimen differs in one important particular, which, if it be found to be general, must, I think, be regarded as a very strong argument against the retention of the new genus *Heteroglaux.* In this specimen the third primary exceeds the fourth by about the same amount that the fourth does the third in the type.* In other words the wing is that of a *carine* (*Athene*). In my specimen the covering of the toes consists of silky hairs, rather than feathers, which while different from the bristles of *C. brama* can scarcely, I think, though taken with the peculiar oblique puncturation of the nostril, be considered as sufficient for establishing generic difference. On the other hand there is the strong resemblance, not only in general characters, but even in some details between the plumage of this species and that of *brama* in favor of the view that they should not be generally separated.

Of course it must be admitted that at present no final decision can be arrived at, as the only two known specimens differ in this important respect. Possibly when brought together and compared, it will be found that the quills in one of them are not fully developed.

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* As figured in Sharpe's Catalogue.

The measurements of my specimen are in inches :—

♂ Length, 8·8; wing, 5·8; bill from gape, 65·; tail, 2·75; tarsi, 10.

Third primary exceeds first by 1·05

81.—Ninox lugubris, *Tick.*

This species is very common throughout the hilly tracts of Orissa in Sambalpur, Jaipur, and Bustar.

115.—Harpactes fasciatus, *Gmel.*

On two occasions I came across the Malabar Trogon in the district of Jaipur (Vizagapatam). On the first a female was shot in the forest that clothes the steep ghâts which rise from the valley of the Tel river to the Jaipur Plateau. On the second I just momentarily caught sight of a male which fluttered past me, looking like a loose ball of feathers, across a path in dense bamboo jungle along which I was riding. The following links along the tract through which this species spreads northwards, have now therefore been established. Dhalbhum (Tickell); Rehrakole (Ball); Jaipur (Ball); Ahiri (R. Thompson); Godaveri Valley (Blanford).

118.—Merops philippensis, *Lin.*

I met with this species in Jaipur and Raipur in April. I have never seen it in these regions or in Chutia Nagpur before the hot weather.

171.—Gecinus striolatus, *Blyth.*

This species occurs, I believe, sparingly throughout. I did not, however, shoot it south of Patna (Sambalpur).

193.—Megalaima caniceps, *Frank.*

This species of Barbet is abundant, and I shot it in most of the districts which I visited—including Jaipur. I did not meet with either of the southern species of Barbets.

205.—Hierococcyx varius, *Vahl.*

This Hawk Cuckoo occurred in such abundance in Jaipur and the south of Raipur that its cry became a positive nuisance and source of irritation, both by day and night. In one particular instance a bird which occupied a tree close to my camp was, to the best of my belief, not silent for ten minutes together out of the twenty-four hours. Though driven away from time to time, he would return, and his shrill notes disturbed me repeatedly during the night.

I am almost sure that I have seen the larger species *H. sparveroides* in Sambalpur and Orissa, and Mr. Blanford, I observe, obtained it at Raipur.

During April I not unfrequently heard a Cuckoo in Jaipur and Raipur which by the note must have been *C. canorus*.

208.—Ololygon passerinus, *Vahl.*

I found this bird again in Orissa* where it is not uncommon; but after leaving that district I neither saw nor heard it again till I reached the western part of Raipur on the road to Nagpur. Its distribution seems to be somewhat peculiar.

271.—Pericrocotus speciosus, *Lath.*

The statement in Vol. II., p. 208, of this journal, that this species is a *winter visitant* in Raipur is, I think, incorrect.† As a matter of fact these birds *appear* to be more abundant in the jungles of Raipur, and the surrounding districts in the hot than in the cold weather. This, I am inclined, however, to attribute rather to the clearness of the jungles, and increased facilities for seeing the birds than to actual immigration at that time of year.

During the present year I shot specimens towards the end of April in the Raipur District, and my rather extensive series of examples from the Orissa, Chutia Nagpur and Central Provinces jungles includes examples shot in every month from November to May, inclusive. I am inclined to believe that these birds breed and remain all the year in these jungles. However, I do not know anything certainly regarding their movements after May, and have never taken a nest.

Three young males shot in Sambalpur in February and one shot in Sirguja at the end of the March, shew incipient stages in the transition from the yellow and grey plumage of the female to the scarlet and black of the male. This shews itself by a general darkening of the greys, and by the appearance of patches of scarlet on the forehead, chin, throat and tail feathers. In one of the Sambalpur specimens the rump and upper tail-coverts, from the blending of scarlet and yellow exhibit a bright ferruginous tinge. By the breeding season, which is said to be in June, these birds of the previous year, in all probability, have assumed the full plumage of the adult male. It is a curious fact that the chin and throat become

* S., F., Vol. IV., p. 235.

† Mr. Ball may be right, but my belief is that this species leaves this neighbourhood early in May. In all the years that Mr. Blewitt collected in Raipur, Sambalpur, Boad and Athmullick, he never obtained a single specimen between the middle of May and the middle of October; and in the same way, whilst stationed in the Doon, I never saw this species there between June and October.—Ed., S. F.

first mottled with, if not wholly, scarlet, before they shew any sign of their ultimate black color.

275.—Pericrocotus roseus, *Vieill.*

In the vicinity of Jaipur town I saw one specimen of a Minivet, which, I believe, belonged to this species. Its occurrence in this part of the country would not be very remarkable, as Dr. Jerdon obtained it in Gumsúr. Unfortunately I did not procure an example.

276.—Pericrocotus peregrinus, *Lin.*

This species was very common throughout, and the series of specimens which I possess shew a very decided scale of progress between the lighter colored Northern birds and the deeply tinged variety which occurs in Southern Indian, Ceylon, and the Andamans.

288.—Tchitrea paradisi, *Lin.*

[illegible]e 11th of April in Nowagarh (Raipur), I first saw [illegible]radise Flycatchers this year; with them also came in [illegible]*as*, and I met both almost daily while I remained in [illegible]e country.

[illegible]ay mention that a small brown specimen of the Flycatkept pace with me for about four miles as, I alternately [illegible]ntered and trotted along the road on my first march out [illegible]om Raipur towards Nagpur.

310.—Muscicapula superciliaris, *Jerd.*

The White-browed Blue Flycatcher, as I have already recorded (S. F., Vol. III., p. 292) is tolerably abundant in Sambalpur, and also observed it in the adjoining districts on the south.

Among my specimens is one young male, in the plumage of the female; it was shot in December 1876.

It was at first rather a puzzling bird to make out, as the plumage of the female of this species is not described by Dr. Jerdon. On obtaining access to my collection, however, I was able to compare it with a specimen from Simla which I received from Dr. Stoliczka, and also with the very full accounts of the different phases of plumage given by him in his paper on the N. W. Himalayas.*

My specimen may possibly have been incorrectly reported to me by my skinner as a male. It corresponds exactly with the old female, not possessing the blue on the upper parts, and,

* J. A. S. B., 1868, p. 31. Also described by Mr. Brooks in the *Ibis*.

moreover, has no white on the base of the tail. According to Dr. Stoliczka the base of the tail is white in all phases of the male. My adult specimens belong undoubtedly to this species, not to *M. æstigma*, which Mr. Brooks reports from Assensole (S. F., Vol III., 235.)

345.—Pitta coronata, *Gmel.*

In my previous mention of this bird I described its notes as I had then heard them, and endeavoured to indicate them by the syllable Wheet-pe-ù. This year I found that it really has a very sweet thrush-like song, somewhat resembling that of the *Shama*. It is copious and long sustained, occasionally the Wheet-pe-ù notes are introduced.

I can very well remember hearing this same song when I first saw *Pittas*, but at that time I thought the notes were to be attributed to some *Shamas* which were in the same trees.

As a rule, I have seldom seen these birds, except when I have tracked them down in the heavy jungle they inhabit—by means of the notes above represented.

I have already, in a previous paper, noted the fac[t] *Pittas* making their first appearance in these jungles, t[o] with the *Tchitreas* in April.

As according to Layard, quoted by Jerdon, the *Pittas* in Ceylon in the winter months; it seems probable that th[e] gration* is between the extreme south of India with Ceyl[on] and the Central Provinces. By this means the cold weath[er] climate of the latter region is avoided.

436.—Malacocircus malcolmi, *Sykes.*

This species of Babbler was not uncommon between Raipur and Nagpur; elsewhere I only observed *M. canorus*.

441.—Chætornis striatus, *Jerdon.*

I have already recorded the occurrence of this species in Sambalpur; the specimen obtained there was a ♂. In the

* I have already, S. F., III., 298, dwelt upon the migratory habits of the *Pittas*. In regard to the present species I may notice that the migration extends much further than the Central Provinces. They arrive at Bareilly about the beginning of the rains, some times earlier; in the Dhoon they become very common early in the hot weather; in this latter place some few may be permanent residents, but the great bulk of the birds are migrants from the south. To the Berars, and the forests about Hoshungabad, it is a regular migrant. It straggles up even into the semi-desert country of Kattiawar, Northern Guzerat, the Sambhur Lake. It comes up in numbers to the northern districts of Oudh and Behar. I have caught a specimen in my house in Chowringhee, Calcutta, in May. Throughout the length and breadth of the country it moves during April, May, and June from the extreme south to all suitable localities in the north, (at any rate west of the Brahmapootra), great numbers reaching the bases of the Himalayas or Sub-Himalayan ranges, where some few are, *I believe*, permanent residents, but where the great mass of the birds are only seasonal migrants from the south.—Ed., S. F.

present collection I have a ♀ from Kalahandi, which differs from the former in size of wing and somewhat, too, in depth of coloration. The hind claws also are appreciably longer in the female.

Length of wings.—♂ 3·5; ♀ 3·15.

452.—Ixos luteolus, *Less.*

My observations on the range of this species (Vol. IV., p. 235) were fully borne out by my trip through the country south of the Mahanadi.

456.—Rubigula flaviventris, *Tickell* (456).

I shot one specimen of the Black-crested Yellow Bulbul on the south bank of the Mahanadi about 60 miles to the west of Cuttack, and a second in the hills near Rampur in Kalahandi. In the former neighbourhood they were not uncommon, but in the latter I saw but a single pair.

465.—Phyllornis aurifrons, *Temm.*

I met with this species as far south as Jaipur. *P. Jerdoni* occurred pretty generally throughout the jungly portions of the area.

582.—Sylvia affinis, *Blyth.*

This species I have never obtained in Chutia Nagpur, but this year I shot it in Karial (Raipur) in the month of January.

596 and 597.—Anthus maculatus and arboreus.

Both these species appear to occur throughout the area under description. Of the former species *maculatus* I have specimens from Talchir, Sambalpur and Jaipur; of the latter (*arboreus*) from Jaipur and Bustar.

693.—Eulabes intermedia, *Hay.*

The localities in which I saw the Black Maina were all situated in the heavy forest tract on the northern slopes of the Jaipur plateau.

A pair, which I shot, measured in the flesh had the following dimensions:—

♂	Length	10·3;	Ex.	20·6;	Wg.	6·65;	Tl.	3;	Ts.	1·4;	Bill from gape 1·5
♀	„	9·5	„	18·2	„	6·	„	2·85	„	1·3	„ 1·45

The ♂ is a more massive bird than the ♀ and, the bill is markedly higher and more curved. This difference in the appearances of the sexes has not always, perhaps, received due consideration.

696.—Ploceus bengalensis, *Linn.*

I shot a male of this species in the grassy plains of Bustar, and with it a female which seems to correspond in characters rather with the female of *P. baya* than of this species.

780.—Carpophaga ænea, *Linn.*

The only place where I actually saw this species during the past season was within the Orissa zone, which I have previously indicated; but from Captain Blaxland, the Assistant Agent in charge of Jaipur, I heard of its occurrence in the neighbourhood of Paparhandi, a town in Jaipur. This is at an elevation of about 1,800 feet, or higher than any locality, whence it has hitherto been recorded. This is probably the point where it spreads across from the Eastern Zone, to which it is confined further north, (*vide* S. F., IV., 236) into the southern central Jungles of the peninsula.

Capt. Blaxland told me of the occurrence of two other species of Imperial Pigeon—one appeared to be the Woodchat of the Nilgiris (*Palumbus Elphinstonii*, Sykes,) with which he was familiar from having seen it in the Nilgiris; the other from the description by Jerdon he inclined to think might be *Carpophaga insignis*,* Hodg., but was not quite sure that he had not also seen *Alsocomus puniceus*. I mention these species with a view to the verification of their occurrence hereafter.

814.—Galloperdix spadiceus, *Gmel.*

I have two ♀ specimens of the Red Spur Fowl, one of which I shot at Kukkur, 5 miles west of Cuttack, and the other at Daramgarh in Patna, Sambalpur District. Neither of these specimens I may mentioned have the slightest trace of spurs. Since I have become more familiar with the appearance of these birds I think it possible that I may have made a mistake as to the identification of this species from a fragment of a skin from Chutia Nagpur.† Regarding its occurrence there the verdict for the present, therefore, ought to be non-proven.

815.—Galloperdix lunulatus, *Valenc.*

I have this species from Hingir, Rehrakalo, Karial and Nowagarh, the latitudes of the two former localities are to the north, these of the two latter to the south of the latitudes of the two places given above for the Red Spur Fowl.

Whatever may be the case in other parts of the country therefore there is here, in the valleys of the Mahanadi and

* Rather *C. cuprea*, Jerd.—Ed., S. F.
† S. F., III., p. 294.

its tributaries, conclusive evidence that the limits of distribution of the two species overlap.

819.—Francolinus pictus, *Jerd.* and *Selby.*

For the first time I met with this species on the borders of Patna and Karial. Thence throughout my trip wherever there was suitable cover it was abundant. It is a marvellous skulker; often I have heard half a dozen calling together within a small area, but have been unable, even with beaters, to get them to rise.

Occasionally at or after sunset, when they had left the grass for the open fields, I got shots, but when in the bush jungle, even if they could be induced to rise, there was often great difficulty in shooting them owing to their dodging behind trees. A party of bird-catchers who accompanied my camp caught a few for me in their quail traps.

I am perfectly certain that I have never seen or heard it north of the Mahanadi. In Chutia Nagpur, where it occurs according to Dr. Jerdon, the only species I have seen or shot is the black, which is not uncommon in Sirguja.

839.—Sypheotides auritus, *Lath.*

I have previously noted the rare occurrence of this species in Chutia Nagpur and Sambalpur. Last year, in December, I saw one individual; this was at Gainslot, in Sambalpur.

—Cursorius coromandelicus, *Gmel.*

curs somewhat sparingly in Sambalpur and Raipur. I saw it in Bustar and in Boad, in Orissa.

845.—Charadrius fulvus, *Gmel.*

The Eastern Golden Plover was not uncommon in Orissa between Cuttack and Sonpur in November.

In April, I saw some in Raipur, which had partially assumed the breeding plumage.

867.—Scolopax rusticola, *Lin.*

The Woodcock, I am informed by Captain Blaxland, has several times been seen, and on one occasion shot on the higher plateaus of Jaipur.

917.—Mycteria australis, *Shaw.*

As in Chutia Nagpur, this bird is rare in the southern area, but was occasionally seen. I shot one specimen in the Pairi River on the southern borders of Raipur.

918.—Melanopelargus nigra, *Lin.*

I have already noted the extreme wariness of the Black Stork, and its fondness for the society of the White-necked Stork* (*M. episcopus*). On three occasions in Karial during January and February, I saw single individuals of this species in company with small parties of *M. episcopus*. On one of these occasions the Black Stork was the first to take alarm at my approach, flying off altogether, while the others merely flew a short distance, and again alighted, allowing me to walk quite close to them.

The former seemed to divine that he was the sole and particular object of my attentions.

938.—Tantalus leucocephalus, *Gmel.*

The Pelican Ibis, which was of such rare occurrence in Chutia Nagpur, is found in some abundance further south. On the Jaipur and Bustar plateau, and in Raipur I not unfrequently saw flocks. In Sambalpur I have not yet seen it.

Remarks on the genus Iora.

It has been more than once asserted of late years that, "if, as there is little doubt, *Sylvia leucoptera*, Vieill., is a species of *Iora*, then *Ægithina*, Vieill., takes precedence of *Iora*, Horsf."

In the first place, I think that it is very doubtful wh*S. leucoptera*, Vieill., was really any species of *Iora*; in second place, if it was so, which cannot now be proved, genus *Ægithina, if* founded on this species, cannot be accepted, because neither was it accompanied by a distinct exposition of essential characters (if really meant to apply to any *Iora*), nor is the type any known species.

The alleged type of the genus *Sylvia leucoptera*, La fauvette leucoptère, was first described by Vieillot; Ois. de l'Amer., Sept., II, 1807, 28, pl. 84.

This bird is said to be an inhabitant of North America. I am unable to refer to the original work, but Steph. Gen. Zool. thus translates the description :—

"Length, four inches and a half; beak, black; its sides white; the whole upper parts of the body yellowish green, *inclining to brown*; the *upper wing-coverts tipped with white, forming a bar* of that colour on the wing, the bend of which, with the cheeks, throat and under-parts of the body, are fine

* S. F., I., p. 433.

yellow; the tail is *dark green;* the legs are black. It is an inhabitant of North America: it somewhat resembles the Pine Warbler."

The Pine Warbler of Vieillot, I may note, is *Helminthophaga pinus,* L. Vieill., Ois. Am., Sept., II, 44.

Now, admitting that the habitat has been, as was not uncommon in those days, wholly wrongly given, the above description will not apply to any known species of *Iora.* None has the upper surface "yellowish green, *inclining to brown,*" and none has "*a* wing bar" in all the known species and races there are *none,* or *two,* * and in no species can the tail, I think, be fairly called *dark* green.

On this species, according to Gray (Cat. Gen. and Sub. Gen. B., Brit, Mus., 39) and others, *Vieillot,* in 1815-16, founded his genus *Ægithina.*

Here again I have not access to the original definition, but *Steph.* Gen. Zool. XIII., 232, thus translates it:—

"*Beak,* elongated, rather stout, more or less arched and deflexed, cylindric, emarginate towards the tip.

Wings short; the first *quill* shorter than the second."

The latter part of the definition could scarcely have been used in regard to *Ioras,* which have the first quill about half the length of the second, the second very conspicuously shorter than the third. Nor is the definition of the bill satisfactory.

The case, therefore, on the hypothesis that *leucoptera* is the type, stands thus:—The professed type of the genus and its only species is unknown, and does not agree with any known *Iora,* and it is next to impossible that any species of true *Iora,* known to Vieillot, should not be known to us.

The definition of the characters of the genus is unsatisfactory insufficient, and by no means agrees even in all the few particulars given with *Iora.*

It seems to me needless to say that, under these circumstances, *Ægithina* could not possibly, under the B. A. Code, supersede *Iora.*

The case has another aspect. Sundevall, in his Critique of Levaillant's Oiseaux d' Afrique, tells us that, Plate 141, of Le Quadricolor, which name Vieillot adopted as a specific name (Enc. Meth., 481), and which unquestionably represents the Southern or *zeylonica* or *multicolor* race of *tiphia,* was the type of Vieillot's genus *Ægithina* in his analysis.

If this were the case, then without question *Ægithina* must supersede *Iora.*

* Except in some cases, where the Southern Indian males, when in full breeding plumage, lose the white tips to the greatest coverts and with these the second bar, but this is never the case, except when the bird is black above.

I believe Sundeval to be in error, but in the absence of the works of Vieillot above referred to, it is impossible for me to speak positively on the subject. All depends upon whether *leucoptera* or *quadricolor* was the original type.

For the present, relying on Mr. Gray, I propose to retain the name of *Iora*.

This latter genus was thus defined by Horsfield, Tr. L. S., XIII, 151,1821 :—

"*Bill*, middling, straight, rather stoutish, wide at the base, slightly compressed towards the point, attenuated*; *culmen*, rounded, feebly arched, continued behind the nostrils, point scarcely inflexed, emarginate; *cutting edges*, sub-diaphonous, sharp; *nostrils*, oval, small, placed in an elongated little depression, attenuated anteriorly; *wings*, short; *quills*, 1 spurious, 4-7 externally slightly sinuated, 3-8 longest, sub-equal, the 2 suddenly, 9 and following ones by degrees shorter; *tail*, elongated, truncated; *feet*, middling, suitable†; *Tarsi* longer than the mid toes by half; *acropodia* obscurely scutellated; *toes*, the front ones feeble, the middle united at the base with the outer; *hind toe* somewhat stronger, equal to mid toe; *claws*, compressed; those of the front toes, feeble; that of the hind toe, stout and strongly curved.

"This genus is distinguished by the strength and conical form of its bill from *Sylvia* and *Motacilla*. The nares are comparatively small. It has a peculiar character in the sharpness and transparency of the cutting edges of the mandibles. The anterior toes are small, and the claws strongly compressed; the posterior toe and claw are comparatively stout."

After some little investigation of this genus, I have b[e]n unable to establish more than four definable species. Of th[e] one, which is also by far the most widely distributed, has plumage of one sex at one season very variable, and l[a]te tendency to exhibit one such phase more commonly in [o]ne another, in another locality; but, so far as I have bee[n] to ascertain, birds, even of this one sex, and at this pa[r]ticular season, that are absolutely identical, occur throughout i[t]s and with these, in each province, intermediate links [to] the characteristic local sub-type and other sub-types, and under these circumstances, though it is desirable to note the variations that occur, I cannot assume specific value for these local varieties, which are in no case invariable, but at most only prevalent, and which, though capable of being indicated, are not

* In this, and all similar translations, I give the most literal version possible. Especially, where a word seems to me capable of two interpretations, I try and represent it by an English or Anglicized word having the same ambiguity.

† I have no very definite idea of what Horsfield here means by the use of the word "*congruus*."

in practice susceptible of any such definition as will permit the separation of half the forms met with, except by the adoption of some purely arbitrary and *unnatural* standard.

I shall discuss this question more fully when dealing with the species in question. In the meantime, I will commence with a brief empirical key to the several species of the genus that I recognize :—

WINGS WITHOUT ANY TRANSVERSE BAR.

Wing, 2·6 to 2·9; bill from gape, 0·8 to 1. — 1. lafresnayii.

WINGS WITH TWO* CONSPICUOUS TRANSVERSE BARS.

Tail, black or yellowish olive green, or a mixture.

Upper part of head, nape and back, grass green, a conspicuous light yellow eye ring. Wing, 2·35 to 2·5; bill from gape, 0·7 to 0·75 — 2. viridissima.

Upper part of head, nape and back, black or yellowish olive green, or a mixture, within one race some pure yellow on upper back; no conspicuous eye-ring — 3. tiphia.

Tail always black and white or greyish white, in varying proportions — 4. nigrolutea.

1.—Iora Lafresnayii, *Hartl.* Revue Zoologique, 1844, 401.

Mag. de Zool., 1845.—*Stoliczka.* J. A. S. B., XXXIX., 309, 1870.

innotata, *Blyth* (? ♀) J. A. S. B., XVI., 472, 1847.

Phœnicomanes iora, *Sharpe*, P. Z. S., 1874, 427, pl. 54; A. & M. N. H., 1875, 236.

Although referred to a few months previously by Mr. Strickland (A. and M. N. H., 1844, 42,) as a new *Iora* lately obtained by Dr. Horsfield, equal in size to the small *Oriolus xanthonotus (!)*, the GREAT IORA was first described by Hartlaub (*op. et loc. cit.*) as follows :—

"Above olivaceous green, with blackish points to the feathers; forehead and rump, yellowish; wings and tail, uniform steely black; under wing-coverts and the internal margins of the quills on their basal halves, white; lores, the little feathers round the eyes, and the entire lower surface, including chin and lower tail-coverts, very bright yellow; bill, plumbeous, with albescent margins; the feet, apparently plumbeous. Length, 6·3; bill from gape 0·96; at front, 0·73—Malacca."

Blyth was the next to notice the species (*op. et loc. cit.*) "The specimen before me, obtained in Arrakan by Captain Phayre, was probably a female, measuring 6 inches in length, the wing

* Some individuals of the Southern race of *tiphia*, males in full breeding plumage and only about one in three or four of these, with the whole top of head and back black entirely lose the lower wing bar, the white tippings to the greater coverts, apparently, wearing off.

2¾ inch, and tail 2¼ inch; bill to gape, 1 inch, and tarsi ¾ inch. Colour, plain green above, yellow below, brightest on throat and breast; no white markings on wings, except a slight white edge to the primaries. If new *I. innotata*, nobis."

Stoliczka thus described what he considered an adult male:—

"General plumage above, black, with a greenish glossy tinge; forehead, yellow, passing to black on top of head between the eyes; neck and back tinged with yellowish green; feathers of the rump very soft, much lengthened, whitish at their bases, olivaceous towards the middle and with yellow tips; upper tail-coverts, short, metallic black; tail and wings, shining black, the latter internally near the shoulder edge yellow, then white; all the wing feathers having the bases with their coverts and the edges of the inner webs, white; the 5-9th quills are on the basal half of the outer webs also slightly edged with yellow; lores and eyelids, yellow; ear-coverts, black, below uniform, bright yellow throughout, slightly olivaceous at the side of the breast below the wings; wing, 2·75; tail, 2·32; bill at front, 0·81, from gape, 0·94; tarsus, 0·81."

Stoliczka suggested that Hartlaub had described a female, but in reality he merely described a male in non-breeding plumage; the females never, I believe, have either wings or tails steely black. I have males in precisely the plumage Hartlaub described, except that they are younger, and that their tails are consequently yellowish olive; each of the feathers, except the central and outer pairs, with a stripe of blackish brown on the inner webs next the shafts.

Blyth's specimen probably was a female.

Lastly, Mr. Sharpe re-described the species (believing his specimen to have been obtained in Jamaica) under the name of *Phœnicomanes iora*, in the following words:—

"Above blackish, with a deep indigo lustre; many of the feathers of the crown and back tinged with yellow, apparently the remains of a previous plumage; forehead, brighter yellow; lores and a distinct eyebrow, bright yellow, as also are the rest of the sides of the face, excepting the upper margin of the ear-coverts, which are blackish; quills, blackish, the primaries narrowly margined with yellow, the secondaries very broadly with indigo; rump and upper tail-coverts, greyish, the feathers very fluffy and washed slightly with yellowish; tail, black, glossed with dull indigo, and crossed with indistinct wavy lines when held to the light; entire under-surface, brilliant yellow; the flanks, very long and fluffy, inclining to greyish white, slightly tinged with greenish; under wing-coverts and inner lining of quills, white, with a slight tinge of bright yellow on the bend of the wing."

Total length, 5·7 inches; culmen, 0·9; wing, 2·8; tail, 2·3; tarsus, 0·9.

These two latter descriptions, it will be observed, by no means perfectly agree; the former gives a "greenish gloss," where the latter talks of "a deep indigo lustre"; I should call it a dull steely gloss. The latter says:—"Rump and *upper tail*-coverts, greyish, the feathers very fluffy and washed slightly with yellowish;" the former, "feathers of the rump, very soft, much lengthened, whitish at their bases, olivaceous towards the middle and with yellow tips; upper tail-coverts, short, metallic black, &c."

I think that, owing to the fluffy luxuriance of the rump feathers, Mr. Sharpe must have overlooked the black upper tail-coverts. These have been very distinct in all specimens in the plumage he describes that I have examined.

I will now describe specimens obtained at Mergui:—*Males* and *females* shot in April, May, *June, July* and *November*—the remarkable point being that no one specimen exhibits the plumage described by Stoliczka and Sharpe, and which seems the ordinary summer plumage of Malaccan males.

The males measured in the flesh:—

Length, 6·4 to 6·5; expanse, 8·82 to 9·2; tail, 2·25 to 2·45; wing, 2·62 to 2·82; tarsus, 0·83 to 9·0; bill from gape, 0·8 to 0·95; weight, 0·75 to 0·85 oz.

The females are perhaps a trifle smaller, but one has the bill slightly longer than any of the males.

Length, 6·12; expanse, 9·0; tail, 2·25; wing, 2·75; tarsus, 0·75; bill from gape, 1·0; weight, 0·7oz.

In the November birds the legs, feet and claws were dull smalt blue, and so were the lower mandible, gape and edges of the upper mandible—the rest of this latter being blackish brown.

In the June and July specimens the legs and feet were clear lavender blue; the lower mandibles and a broad line on each side of the upper mandible, pale blue—the rest of the latter black.

One noteworthy point is, that the two sexes, killed in winter, differ in *no* respect, expect that the lower surface of the males is invariably a brighter, purer, more golden, or gamboge yellow, and that of the females, paler, greener, more lemon yellow. Unlike *tiphia*, the *tails* of all the males obtained by us in November in Tenasserim, are olive green, like the females, not black. Can they *all* be young birds? They do not look so.

The same almost may be said of the specimens of both sexes killed from April to July in the same locality; but in one male, killed on the 24th May, the dusky fringes to the feathers of the crown and back are more distinct and blacker, and wings and tail are becoming black. None of the June and July birds show any progress towards the black plumage, which at

Malacca is undoubtedly that of the adult male in spring and summer.

It is not impossible that all our birds from Tenasserim are immature; the females not differing materially from what they would be when adult, and the males only differing from the females in the brighter and more golden yellow of the lower parts.

It is, however, quite possible that the Tenasserim and Arakan birds may represent a distinct race, differing from *Lafresnayi*, just as *tiphia* does from *zeylonica*—the males not assuming the black plumage of the breeding season, and moreover retaining, as a rule, the olive-green tails of the female.

This seems hardly likely, but then neither is it likely that more than 30 specimens, secured from April to November, all of which, so far as the look of the feathers go, seem adult, should all be immature. No doubt, one May specimen exhibits traces of assuming the black plumage, and is certainly getting the black wings and tail, but then even in the strongholds of typical *tiphia*, individual birds closely approximating to the typical *zeylonica* plumage, may be met with.

The following is a description of our Tenasserim specimens, whether immature or representatives of a distinct race time must show:—

Male.—The *whole* upper surface, including the wing-coverts and almost the whole visible portion of the tertiaries, is a dull, slightly, yellowish olive green, obscurely pencilled, and the feathers here and there feebly fringed with dusky, yellower on the head and tail, and passing to a greenish golden yellow on the forehead; most of the lateral tail-feathers, except the central and outer pairs, with a broad stripe of brownish black on the inner webs next the shafts; tertiaries, blackish brown, very much overlaid with olive green, the blackish brown only showing as a band along the basal two-thirds of the shaft, though spreading more or less on either side towards the margins in the shape of rudimentary bars; primaries and secondaries, deep brown; all but the first or first two in some, narrowly margined with olive-green, greenish-white or dull-white, the shade varying much in different specimens, but the margins of the earlier primaries being always whitest, and those of the later secondaries (some of which are, however, often narrowly tipped whitish), greenest.

The lores, ring round eye, cheeks, chin, throat, sides of neck, breast, abdomen, vent and lower tail-coverts, intense gamboge yellow; ear-coverts, the same, slightly shaded with olive green; sides of breast, olive green; a huge patch on the *flanks* of very long, silky fluffy feathers, mingled grey and white;

axillaries, white, sometimes faintly tipped yellowish or with olive green; shoulder of wing, inside yellowish; rest of wing-lining, satiny white; the quills, with satiny white margins to the inner webs, at the extreme base only in the case of the first, but for a greater and greater length in each succeeding quill, so that in the latest secondaries the white margin extends quite to the tips.

The females, absolutely similar, except that the whole of the golden or gamboge yellow is replaced by a paler, greener and more lemon yellow.

The only localities from which we have specimens are the extreme southern portions of the Tenasserim provinces, and the Malay Peninsular, from the neighbourhood of Malacca, specimens from the latter locality differing as above pointed out; Blyth, however, recorded it as above from Arakan. We have never yet received it thence.

2.—Iora viridissima, *Tem.*. *Bp.* Consp. Gen. Av. I., 1850.

[illegible]laris ♂, *Horsf.* apud Blyth, J. A. S. B., XIV, 602, [illegible] apud *Horsf*, Cat. B. H. E. I. C. Mus. I., 265, et *auct.* [illegible]*rsf.* Tr. Lin. S. XIII., 152, *nec* Zool. Res. Jav.

[illegible]hloroptera, Salvad. U. de B. 192, 1875, ♀.

Bonaparte first described this species (of which he found specimens in the Leyden Museum from *Borneo* and *Sumatra*, bearing Temminck's manuscript name) in the following terms:—

"Intensely green; scarcely paler beneath; eye spot and vent, yellow; wings, white banded; tail, black."

Blyth, getting specimens from *Malacca*, took it into his head that this was only the male of *I. scapularis* of Horsfield, which he concluded to be the female. Horsfield himself, Moore, and others adopted this view. Salvadori (Uccelli di Borneo, 191, 193) was, as far as I know, the first to publish a contradiction of this hypothesis, but even he does not appear to have seen reliably sexed specimens of this species.

We found this species, The Green Iora, common at Johore, at the extreme south of the Malay Peninsular; at Nealys, about 31 miles from Malacca, near Malacca itself, and Davison shot a single specimen at *Mergui* on the 20th June. It is also recorded from Borneo and Sumatra.

The sexes do not differ appreciably in size, nor in the colors of the soft parts. The following particulars were recorded from numerous fresh specimens:—

Length, 5·0 to 5·25; expanse, 7·5 to 7·82; tail, 1·75 to 1·82; wing, 2·35 to 2·5; tarsus, 0·65 to 0·7; bill from gape, 0·7 to 0·75; weight, 0·5 to 0·62 oz.

Legs and feet, plumbeous blue; claws, black; lower mandibles, gape and a line on each side of upper mandible, dark plumbeous blue; rest of upper mandible, black or blackish brown; irides, dark to reddish brown.

Male.—An orbital crescent on upper and lower eye-lids, not meeting either before or behind, bright light yellow; a blackish dusky lore spot; forehead, crown, occiput, ear-coverts, back and sides of neck, back and scapulars, a beautiful dark grass green, varying a little in intensity in different specimens; rump, similar or a shade greyer; the longest feathers more or less faintly tipped yellower, and except in first class specimens, a good deal of the fluffy greyish white bases of the feathers showing through; tail and upper tail-coverts, intense black, but with a faint bluish shine in some lights, most noticeable on the coverts, which are short; chin, throat, breast, similar to back, but a shade yellower; abdomen, a little yellower still, and lower tail-coverts, pale pure yellow.

A huge tuft of satiny white feathers on the flanks, overlaid and concealed until the feathers are lifted by the [illegible]y yellowish green feathers of the sides of the abdomen.

Wings, black; two conspicuous snow white wing bars [illegible] by the broad white tippings of the median and greater c[illegible] all but the first 1, 2, or sometimes 3 quills, conspic[illegible] margined on their outer webs, with bright more or less yel[illegible]ish green; these margins are rather broadest on the tertiaries, and in these, and sometimes some of the latest secondaries, run round the tips, and are *here* always palest, and in some specimens quite white.

Shoulder of wing, yellow or greenish yellow; rest of wing-lining and more or less of inner margins of quills, satin white.

Female.—Differs in having tail and upper tail-coverts, yellowish olive green—in having the wings, dark brown, the wing bars, pale greenish yellow,* and the colored margins to the quills, paler and yellower. In wanting the dusky lore spot, thus allowing the yellow eye-lid lines to meet in front; in having the entire lower surface, but especially the chin and throat paler and yellower than in the male.

I am not aware that the two sexes have ever before been properly described.†

Iora tiphia, *Lin.* S. N. I. 331, 1766.

(Ex *Edwards'* Birds, II., 70, t. 79, 1747, and *Brisson's* Ficedula bengalensis, Av. III., 484, 1760).

* It is this peculiarity which leads me to suggest that *Iora chloroptera*, [illegible]d, may be a synonym.

† Since this was in type I have received the July number of the "Ibis" for [illegible] which p. 304, pl. V, this species is figured.

July [illegible] 1877 [illegible]

Green Indian Warbler, *Lath.* Syn. II. 2, 474, No. 90, 1781.
Le Figuier Vert et Jaune. *Buff.* Hist. Nat. VI., 160, Edition of 1783 ; V., 278, Edition of?
tiphia, *Gm.* S. N. I., 963, 1788.
sub-viridis, *Tick.* J. A. S. B. II., 577, 1833.

zeylonica,* *Gm.* S. N. I., 964, 1788 (ex Ceylon Black cap *Brown's* Ill. 36, t. 15; and Ceylon Warbler, *Lath.* Syn II. 2, 474, No. 87, 1781).
multicolor, *Gm.* S. N. I., 924, 1788 (ex Green-rumped Finch, *Lath.* Gen. Syn. III. 329, No. 96, 1781); *Lath.* Ind. Orn. II., 465, 1790; Gen. Hist. VI. 111.
Le Quadricolor, *Levaill.* Ois. d'Afr. III. 121, t. 141, 1802.
quadricolor, *Vieill.* Encl. Meth. 481.
melaceps, Swains. ?
meliceps, *Horsf.* Apdx. Desp. Court Direct. 17 of 16th September 1840, pub. J. A. S. B. X. 50, 1841.

scapularis, *Horsf.* Tr. L. S. III., 152, 1821 ; Zool. Res. Java, 1824.
viridissima, *Tem.* apud *Bly.* J. A. S. B. XIV. 602, 1845, et *Horsf.* Cat. B. Mus. P. I. C. I. 266, &c., nec *Tem.*

viridis, *Tem. Bp.* Consp. I. 397, 1850—Salvad. U. de B. 190.

Linnæus' description of THE COMMON IORA is as usual brief.
"Green, below yellowish; wings black, with two white bars. Inhabits Bengal.
"Wing bars resulting from white tips to coverts."
He refers to Edwards and Brisson.
Edwards' original description is as follows :—†
"The bill is black or dusky, a little inclining to yellow near the head, and a very little bowed downwards; the top of the head, upper side of the neck and back, are of a green colour, pretty dark; the rump and upper coverts of the tail green, but something lighter; the sides of the head, throat, breast,

* Moore and Horsf. Cat. B. Mus. E. I. C. I. 267, Bp. and others give *Motacilla cingalensis* and *melanictera* of Gmel. as synonymes; *singalensis*, Gm. is certainly not synonymous, and there is no *Motacilla melanictera*, Gm. that I can find. Probably, *Muscicapa melanictera*, Gm., is intended, which, as is well known, is a bulbul, *Rubigula melanictera*.

† Latham, Gen. Hist. VII. 128, Shaw. Gen. Zool. X. 688, and others following these, refer Edwards' pl. 79 to the female, and refer to plate 15 as representing the male. This seems to be a mistake. Edwards never, I believe, figured the male, and his pl. 15 represents "The long-tailed Dove." Stephens, to be more exact, specifies pl. 15 of the "*Gleanings*," the first plate in which (they being a sort of continuation of the "Natural History of uncommon birds) is No. 211, and the 15th of them (No. 216) representing "The Mongooz," which by the way is not a Mongoose at all.

belly, thighs, and covert feathers under the tail, are yellow, a little clouded with green, on the head and sides of the neck; the dark green of the upper side, and the yellow on the lower, lose themselves in each other. The wings are dark brown or black, some of the quills are yellow on the edges of their webs; the first and second row of covert feathers on the upper side of the wings have white tips, which make two bars of white across the upper part of each wing; the inside of the wing feathers is something fainter than the outside; the tail is of the same dark green colour with the back; the legs, feet, and claws are of a dark brown or black colour."

Edwards' figure is a good one; but, like the description, entirely fails to fix the *race*. It is clear that his specimen was either a female or a young male.

It may be well to premise that the adult male *always* has a black tail, the *central* feathers at times during the cold weather more or less overlaid (except in rare cases, only on the terminal $\frac{1}{4}$ to $\frac{1}{2}$) with bright olive green; on the other hand the females always have olive green tails.

The young male, hatched in the summer, retains the olive tail till the end of the next March, or thereabouts, as I find several young birds, killed in April and late in March, moulting the olive and putting out the black tail feathers.

As I shall show more in detail hereafter females and, I believe, young males, from Ceylon, all parts of the Indian Empire, all parts of the Malay Peninsular, Sumatra, Borneo and Java, are absolutely inseparable, with the exception of a certain slight difference in one Central Indian race, to be noticed hereafter.

There is nothing, therefore, to show whether Edwards' bird belonged to the so-called *zeylonica*, *tiphia* or *scapularis* race, beyond his remark that the person who lent him the specimen informed him that it had come from Bengal—a term in those days practically often including every thing brought alike from India, the Straits, and all the larger Northern Islands of the Archipelago by vessels last hailing from Calcutta.

Brisson refers to Edwards, and to *Luscinia bengalensis* of Klein, (Av. 75, No. 17,) whose work I have never yet been able to obtain.

Brisson's description, however, appears to be so far original that it is apparently a translation of Edwards, modified on comparison with a specimen of which he gives accurate dimensions, &c., not found in Edwards', though they may be in Klein.

Brisson merely repeats Edwards' statement that this species inhabits "Le Royaume de *Bengale*."

Unless, therefore, Klein gives something absolutely definite,

there is nothing so far to show with *certainty* which of the supposed races the female, named by Linnæus "tiphia,"* belonged to.

Brisson, I have said, gave dimensions, but these will not help us; for, despite all that has been said about longer bills, greater size, &c., I find that equally long and short wings and bill occur alike in Ceylon, Central Indian Terai, Calcutta, Eastern Assam, Rangoon, Mergui, Malaccan and Johore birds, while of the very few Javan, Sumatran and Bornean specimens that I have been able to examine, the dimensions fell within those ascertained from a huge series from the above-mentioned and numerous intermediate localities.

Latham first distinguished the sexes, and he describes the male (in breeding plumage) with the tail *blackish*, with the edges yellow. The female, he says, differs in being paler and having the tail pale green. He says that the bird is found in the neighbourhood of Calcutta, and is the Chatuck of the Bengalese, so that this fixes the race.

Buffon's notice is a mere abstract of Edwards', Brisson's, and Linnæus'.

Gmelin's *tiphia* is, of course, Linnæu's, with Buffon and Latham added as references, the latter really satisfactorily fixing, as already noticed for the first time, as far as I can make out, the race to which the name should apply.

Gmelin's *zeylonica*.

"Green, below yellow; vertex, nape and wings black, the latter with two white bands; inhabits Ceylon; bill bluish grey."

Founded on Brown's figure of the Ceylon Black Cap, and his and Latham's description leave no doubt as to the race which this name was intended to typify.

Two years later, Latham adopted Gmelin's name *zeylonica* in his Indian Ornithology, and referred to Gmelin's description. As far as I can make out he intended to unite the Ceylon and Calcutta races as one species, and that he clearly did in his General History, in which, under his own original trivial name of "Green Indian Warbler," he united *tiphia* of Lin., *zeylonica*, Gm., his own Ceylon Warbler, Brisson's, Buffon's, Brown and Edwards' birds.

Yet Latham had himself separately described the Ceylon race under a distinct title as the Green-rumped Finch in the following terms:—

"Bill, bluish; head, hind part of the neck, upper part of the back, and tail, black; cheeks, chin and the rest of the underparts, light yellow; wings, black; on the coverts, a white spot;

* And what may *tiphia* mean? I certainly never met with the word, and I failed to find it in any dictionary available to me.

the secondaries crossed at the ends with white; lower part of the back and thighs, green; legs, grey.

"Inhabits Ceylon."

This is an absolute photograph of some of the Southern breeding males, in which the second wing bar, formed by the white tips of the greater coverts, has wholly disappeared, in which the first wing bar has contracted to a broad patch, and in which nothing is left of the white edgings to the feathers, but just a white tipping to the secondaries.

I have before me now a bird which might have been the very specimen described by Latham, from the Island of Rameśuram (which forms one pier, as I may say of Adam's Bridge) between Ceylon and Paunben.

On this bird of Latham's was founded Gmelin's *Fringilla multicolor*, and this name has precedence of his other named *zeylonica*, and must be adopted for the Southern race by those who consider this entitled to specific distinction.

In 1821 Horsfield described the Javan race under the name of *Iora scapularis*, and later he further amplified his description of and figured the species.

His figure and description alike refer to the female, and he later, following Blyth, accepted (Cat. B. Mus. E. I. C., 266) the very distinct *I. viridissima* as the male of his species.

His figure, at any rate in my copy, represents the bird of a far purer green above than any female that I have ever seen; but his description shows that the plate is in error, as he says that "the general colour of the upper parts is *olive* green."

The following is Horsfield's revised description:—

"The entire length of the *Iora scapularis* is five inches and a half; its weight four drams and one-fourth; the general colour of the upper parts is olive green, inclining to yellow; it is more saturated on the back and neck, and becomes pale and yellowish on the coverts of the tail and forehead; the same colour, but more diluted, covers the abdomen and vent; the throat, breast, and cheeks have a bright lemon yellow tint; a narrow border of this colour also marks the outer margin of the quill and secondary feathers, while the latter have interiorly a whitish margin; each of the greater coverts of the wing is terminated obliquely by a broad white band, and the disposition of these feathers occasions a single, or in some instances two, irregular, nearly parallel, longitudinal lines on the wing; the general colour of the quill and secondary feathers is dark brown, inclining to black; the plumes of the lower part of the back and the abdomen, and hypochondriæ, are greatly lengthened, and their filaments are soft, silky, and much sub-divided, so as to constitute a thick coat surrounding these parts like a m

the under side of the wing is brown at the extremity; a white discoloration extends obliquely backward, occasioned by the white border of the inner vane of the quill feathers; the tail consists of twelve feathers, which are close at the base, and inserted in a double series, above each other; the exterior feathers, and those that are lowest in their insertion, are somewhat shorter, so as to afford a moderate rotundity to the tail. The intermediate feathers are regular, and have an uniform tint of olive, inclining to brown; on the exterior feathers the inner vane is broader: they are somewhat obliquely inserted, and they have exteriorly, and at the extremity, a yellow border; the shafts are deep brown; the irides have a white or pale yellow colour, and the bill and feet are bluish; the nostrils are posteriorly covered by a membrane, and a few short slender bristles, arising from the forehead, stretch over them."

I have been unable to trace Swainson's name *melaceps*, but it manifestly was applied to a bird of the Southern type. Horsfield applied it to a bird from the Dekhan, but afterwards considered that he was in error, and that this should stand as *tiphia;* but he must have had either a female or young or non-breeding male; for, if the two forms are to be specifically separated, the Dekhanee birds unquestionably pertain to the Southern form.

Tickell's name, *sub-viridis*, applied to specimens from Bhora-bhúm and Dholbhúm, doubtless pertains to the *typhia* type, but he only described a *young* male. He says:—

"*Male.*—Allied to the *M. zeylonica* of Horsf. Bill and legs, pale bluish horn; eyes, hazel; plumage, above olive green, below olive yellow; wings, black, edged yellow; greater coverts, tipped white; tail, dark olive green. Common in thick bamboo or saul jungle on hills."

Lastly, Bonaparte separated the Bornean race under Temminck's manuscript name of *viridis*, with the following brief diagnosis:—

"Like *scapularis*, but yellower below, and with a stouter bill."

Salvadori, with eight Bornean specimens before him, declares them to be identical with Javan specimens, and suggests that (as I believe can scarcely be doubted) *viridis*, Bonap., must be identical with *scapularis*.

I have thus, I fear at tedious length, reviewed, so far as my very limited library permits, the nomenclature of this species (or group of species) as some hold.

I now proceed to explain the grounds on which I consider that all these names really represent only one species, as also, so far as I have been able to trace them, the local variations which this species has a tendency to exhibit.

The Marquis of Tweeddale asserts that "the problem is a much deeper one than whether *I. zeylonica* and *I. tiphia* are to stand in our lists as titles representing one species or two distinct species, &c."; but, as a matter of fact, the problem, such as it is, lies entirely on the surface, and is merely one of nomenclature, which, as Professor Alfred Newton recently remarked to me, bears the same relation to real natural history that rat hunting does to real sport.

The facts admit of no doubt: the question merely is, whether in face of these we shall, as a matter of classification, accept three or one species.

The question is any thing but a deep one. All living forms are subject to a greater or less amount of modification under the influence of diversified physical surroundings. In some cases, whether owing to the greater original susceptibility of the type, or to the greater activity of the modifying causes, or to the greater lapse of time during which the form in question has been exposed to these modifying influences, the changes resulting are marked and constant within a determinable area. In other cases the changes are insignificant and only exhibited, even within the area where they are most noteworthy to a variable extent, and in *some* only of the individual local representatives of the form.

Naturalists, as a rule, would agree to designate as *species*, the varieties that have arisen in the first class of cases, while they would equally refuse specific rank to those in the second.

But of all things being ever in a state of change and progress, we meet of course with numberless instances in which the degree of modification attained cannot be, with equal certainty of a general consensus, either acknowledged as of specific value or ignored—cases in which some naturalists would, and some would not, admit that the extent of modification attained, and the degree of constancy with which it was exhibited, were sufficient to justify the award or maintenance of a distinct specific appellation.

The present is just one of these doubtful cases; the matter for decision can scarcely be termed a problem at all. It is a mere matter of opinion whether, under the circumstances, we are justified in retaining several specific titles for the various races, or whether we should unite all under one.

How stands the case.

After a most careful and laborious examination of the enormous series reviewed in the Appendix, I am of opinion that, broadly speaking, the females of all the races from Java through Borneo, Sumatra, the Malay Peninsular, Tenasserim, Burmah to Assam, and thence through Bengal, the N. W. Provinces and

Central India to Ceylon are inseparable alike as regards colour and size.

I must premise that females killed at the same season must be compared, and several from each locality.

Although the rule is by no means absolute, the females, as a body, have everywhere I *believe*, *certainly* throughout India, Burmah, and the Malay Peninsular, a tendency to assume a somewhat brighter plumage during the spring and summer than they exhibit in the winter. The green of the upper surface is generally a shade brighter; the yellow of the chin, throat and breast is often decidedly brighter.

Even when killed in the same locality on the same date, females often differ *slightly* in tint, both above and below; and in all localities throughout India, Burmah and the Malay Peninsular, some females are met with in the winter as bright as the majority in the summer, and some are found in the latter season still comparatively dull. No doubt, between the greenest and yellowest, the brightest and the dullest, the difference is never great; but still if one happens to hit upon a comparatively very green one from one locality, and a very yellow one from another, or a very dull one from one place, and a bright one from another, it is easy to mistake differences which are really merely seasonal or individual, for local variation.

As regards size again, this, within certain limits, varies a good deal in the individual; but not, it seems to me, according to locality.

At first sight the weak point in my position appears to be that, out of over 100 females from different localities, critically examined and measured by me for the purposes of this paper, only 2 are Javan, 1 Bornean and 2 Sumatran; but this does not really in any way vitiate my argument. I cannot, indeed, match all my southern and northern Indian, Burmese and Malay females out of my five insular examples, but I *can* match every one of these latter amongst my specimens from all the former localities, and the dimensions of all these five specimens fall within those of specimens from these said localities.

The Marquis of Tweeddale says :—

"Javan *I. scapularis* ♀ is certainly not separable from *I. tiphia* ♀ ; the bill, however, is shorter."

The bill doubtless was so in this particular specimen that he compared. It may even *average* so, but in my two specimens' the bills, carefully measured with an ivory rule from point to frontal bone, are 0·69 and 0·63. In four Calcutta, and five Commilla, females, all of which I presume may be accepted as typical *tiphia*, the bills are 0·7; 0·65; 0·7; 0·68; 0·7; 0·71;

0·63; 0·7; 0·67. It seems to me clear that no distinction can be set up on the strength of difference in length of bill.

Count Salvadori remarks that the Bornean *scapularis*, of which he had eight specimens, are precisely identical with Javan specimens. *Scapularis*, he says, differs from *tiphia* in having the yellow of the lower parts somewhat brighter, and the wings somewhat shorter.

The wings of my Javan and Bornean specimens, of both sexes, vary from 2·45 to 2·65. In thirty odd Calcutta specimens of both sexes the wings vary from 2·4 to 2·65, the great majority, however, falling below 2·5, and only one reaching and one exceeding 2·6. So that, judging from these alone, one would say that if anything it was *tiphia* that had rather the shorter wing; but if we also take the birds from the Dhoon, Kumaon Bhabur, Tirhoot, Sarun, Bhotan Dooars, Dacca, Cachar, Suddya—all I conceive equally *tiphia*—we find that 2·6 is a common length of wing, and there are two of 2·65 and one of 2·7. I do not, therefore, think that any distinction can be based on size of wings.

As regards the lower surface being brighter yellow, I suspect Count Salvadori here only referred to the *males*, of which hereafter; certainly in my five insular females not one is yellower or of a purer or brighter yellow below than many of my Southern Indian and Bengal females, which may be fairly assumed as typical *multicolor* (*zeylonica*) and *tiphia* respectively.

One Javan female is a shade greener, I think, than any other female I possess. The difference is very slight, but after studying this one species for several days one comes to appreciate a very slight difference in shade, and I think this female is just appreciably greener than any other—but one from the Wynaad and one from Calcutta are very, very close. The other Javan female, however, is typical.

I notice a considerable variation in the stoutness of the bills in both sexes, but I confess my entire inability to connect this, though I have tried hard to do this, with either shade of plumage or locality. Precisely, similar variations in the thickness of the bill seem to me to occur everywhere, and quite irrespective of stage or tone of plumage.

On the whole, therefore, I am compelled to come to the conclusion that, whatever distinctions may be pointed out between individuals, females throughout the entire area of distribution of the supposed three or four species, *zeylonica*, *tiphia*, *scapularis* (and if any one still considers it distinct, *viridis*) are practically inseparable, although in all parts of this vast region you could probably pick out individual females differing in the several slight particulars, which one or another authority

(and they are not agreed on these points) has considered characteristic of the females of this or that species.

There is one apparent, very slight, exception to this general rule, which would scarcely deserve notice, were it not accompanied by a corresponding general slight difference in the male, and this is that the females of the central portions of the southernmost section of Continental India (which I consider to extend southwards to the 21° N. Lat), *e.g.*, of Saugor, Jhansi, Seonee, Jubbulpore, Raipoor, &c., are apparently persistently somewhat paler and duller colored, alike in winter and summer, and have as a rule at both seasons broader-colored margins to the quills than any other set of females from any other locality, season for season. These diffrences are only just appreciable, the latter is certainly not absolutely constant, and the former may not be so, though I am inclined to believe that it is, but they deserve notice from the fact that the males of this tract also exhibit certain peculiarities connecting them with *zeylonica*, *nigrolutea* and *tiphia*, by whose areas their habitat is cirumscribed.

As regards young males prior to their moulting in from March to May, into the adult male plumage, *I believe* that precisely the same may be said; but I have examined too few specimens to enable me to speak positively. Those that I have examined were undistinguishable from females.

In the breeding plumage of the males, on the other hand, the most marked differences are observable. There are, however, only two types; perhaps it would be more correct to say two extreme forms between which all the others lie.

The first, which may be called the *zeylonica* type, has the entire forehead, crown, occiput, nape and back, unbroken, glossy jet black; the rump, greenish yellow; no second white wing bar (the white tips of the greater coverts having disappeared); no white or colored margins to any of the quills; and the chin, throat, cheeks, breast, the most intense yellow, in some more gamboge, in some more golden. This plumage is exhibited by many males from Ceylon and the southern portions of the Indian Peninsular, and (for though I have no specimens of my own thence quite typical, I have examined one such from Singapore) by some at any rate from the extreme south of the Malay Peninsular.

The second, which is the typical *tiphia* plumage, has the whole upper surface green, shaded but nowhere patched with black; both wing-bars and quill margins fairly conspicuous, and the chin, throat, &c., much brighter than in the non-breeding season, but still of a more lemon and less golden yellow than in the southern form.

Between these two extremes all possible intermediate forms exist.

Even in Ceylon and the extreme south of the Indian and Malay Peninsulars (where alone, to the best of my belief, what I call, the truly typical *zeylonica* plumage ever occurs,) by no means all, probably by no means the majority, of breeding males assume it. It may be a sign of special vigor, or of age, I cannot say, but judging from all the specimens I have seen, I should say that, in Ceylon itself, a considerable proportion always retain a certain admixture of black-shaded green on crown, or nape, or back, not unfrequently on all, more often on one or other of these parts.

Again at Calcutta, the typical *tiphia* plumage seems to be by no means constant. A good many males have more or less patching, or more properly mottling, of black on the back. Blyth records (J. A. S. B. XIII, 381) a specimen with the hinder half of the crown black. I have seen one with nearly the same amount of black on the crown; another with nearly the entire back black, and several with large black patches there.

If you start from Ceylon and work northwards through Travancore, Tinivelli, Madura, the Pulneys, Nilghiris, the Wynaad, Mysore, &c., as far north at any rate as the valley of the Taptee* and Hoshungabad, on the west and centre of the Peninsular (how far north it reaches on the eastern side of the Peninsular I do not yet know), you find the immense majority of the birds more or less of the *zeylonica* type, the males putting on as a rule a great deal of black during the breeding season, but the amount of this diminishing on the average, it seems to me, as you work northwards, and being never (so far as I know) found in its full uniformity except in the extreme south. Even here, however, males breeding in the typical *tiphia* plumage may be met with.

Further than this, so far as I can judge, in the extreme south the majority of the males retain more or less black about them even in the *winter* (though in Ceylon itself *many* males occur at that season undistinguishable from Calcutta ones); but as you proceed northwards, males of the latter type become commonest.

On the west and west-centre of the northern limit of this type, it is bounded by a distinct species, *nigrolutea*, distinguishable at once by the grey or white-tipped tails, the males of which, in breeding plumage, are further distinguished by their brilliant yellow collar, sharply defining the black cap.

* The *zeylonica* type occurs also at Mount Aboo, but as an outlier; in the plains below the species is *nigrolutea*.

On the east centre, and I believe east (at any rate as far east as Raipoor) of the northern limits of the *zeylonica* form, appears at Nagpoor, Saugor, Jhansi, Jubbulpoor, Seonee and Raipoor, and, doubtless throughout wide tracts not yet defined, another race of which the females seem to be always a shade duller and paler than any from any other localities, and of which the males never exhibit any black during the non-breeding season, being then precisely similar to Calcutta birds, but which, during the breeding season, have a great deal of black, quite as much as some Ceylon males, though never so much as the fullest plumaged ones, on the upper parts, and while their tails show no affinity to *nigrolutea*, exhibit their relationship to this species by the great amount of bright yellow that they show on the upper back.

Individual specimens from other localities, both in Southern India and the Malay Peninsular, show something of this, but nothing to the extent to which it is exhibited by all breeding males from the localities above indicated.

Those who persist in maintaining *zeylonica* and *tiphia*, &c., as distinct, must equally distinguish this race under some name which they must assign, as it is nameless as yet, but my own view is opposed to any such separation.

How far north this race extends, and whether it quite reaches to the coast on the East, is still uncertain.

But, so far as I can judge from Sumbulpoor, Bustar, and Jeypoor (of Vizagapatam) specimens, this race wears itself out eastward,—some of the specimens from these localities exhibiting its characteristics in a more or less marked form, and others scarcely at all. The only specimen examined from Hazareebagh is typical, *tiphia* and so are all the Chota Nagpoor specimens, the males of which show that the *tiphia* type of coloration prevails there.

At Calcutta we have the typical *tiphia*; but even here the birds are, by no means, invaribly true to type; in many cases they show a very perceptible amount of black patching, and in some few cases a great amount of black. In Dehra Dhoon, Oudh, Behar, Hazareebagh, Chota Nagpoor, the Bhotan Dooars, Jessore, Dacca, Commilla, the Garrow Hills, and Suddya in Assam (and probably in the whole intervening regions, but I only speak of what I have seen), the birds are similar to Calcutta ones; but it seems to me that the further north you go, the less tendency there is to deviate from the typical *tiphia*. Certainly, in a large series from Northern Behar, shot from April to August, there were very much fewer and less marked deviations from type than in a similar series from Calcutta.

Passing into Burmah, though the *tiphia* type may prevail, the variations become more numerous and conspicuous. Birds with the entire nape and back black, or the entire crown and nape black, and the back much fringed with that colour, are not uncommon, and become more and more so I believe as you go south, until at Singapore the majority, I believe, of the males when in breeding plumage exhibit a considerable amount of black on the upper surface, and some at any rate occur (how rarely or how commonly I cannot say) of the purely typical *zeylonica* type.

We preserved a very great number of these birds in the Malay Peninsular, and if any other distinct form occurred otherwise than as an exceptional straggler, we must have procured it just as we did *Lafresnayi* and *viridissima*, and therefore, despite what has been urged to the contrary, I submit with some confidence that the species there found does *not* exhibit a bit more *golden* yellow on chin, throat, and breast than do many Southern Indian breeding males, though, of course, this colour varies first according to season; and, secondly, according to individuals, so that either a series or the most golden [illegible] must be compared.

That the yellow of the throat, &c., of *many* Malayan specimens is far more golden than that of Calcutta, or even the great majority of Northern Burmese birds is undeniable; but this is only because in this, as in other points as you go south, the species reverts more and more to the Southern Indian type.

As for the greater stoutness of the bills, &c., &c., as before remarked, I am quite convinced, after a careful study of several hundred specimens in my own and other collections, that, so far as specimens from all parts of the western half of the Malay Peninsular, Burmah, India and Ceylon are concerned, these differences are individual, and neither local nor connected with different shades or types of plumage.

As regards adult males in the non-breeding season, precisely similar individuals may be met with throughout the whole area; but in the extreme south of the Indian Peninsular *many* (probably the majority) and in the south of the Malay Peninsular, *some* retain more or less black about the upper parts, and bright yellow on the lower throughout the year.

This, therefore, is the point for decision. Given a species, of which the females and (probably) immature males are absolutely inseparable throughout its entire area, of which the males in breeding plumage as a body (but not in either case invariably) in certain parts of its area, assume a great deal of black and bright yellow, and in others little or none of the

On the east-centre, and I believe east (at any rate as far [illegible]t as Raipoor) of the northern limits of the *zeylonica* form, [illegible]ars at Nagpoor, Saugor, Jhansi, Jubbulpoor, Seonee and [illegible]aipoor, and, doubtless throughout wide tracts not yet defined, another race of which the females seem to be always a shade duller and paler than any from any other localities, and of which the males never exhibit any black during the non-breeding season, being then precisely similar to Calcutta birds, but which, during the breeding season, have a great deal of black, quite as much as some Ceylon males, though never so much as the fullest plumaged ones, on the upper parts, and while their tails show no affinity to *nigrolutea*, exhibit their relationship to this species by the great amount of bright yellow that they show on the upper back.

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former, and a duller shade of the latter, every possible variation in the amount of the black and intensity of yellow assumed being met with, and of which many of the non-breeding males from all parts of its area are identical (though many of those in localities where most black and the intensest yellow is assumed during the breeding season, retain more or less of these during the non-breeding season also,) is it logical or expedient to break this species up into several on the strength of such very variable and inconstant differences?

In my opinion it is not; and my view therefore is, that all the various races and names enumerated above should be united under *tiphia*, Lin.

4.—Iora nigrolutea, *Marshall.* S. F. IV., 410, December 1876. HUME, S. F., V., 134.

Neither Captain Marshall nor myself have quite done justice to this species, the WESTERN IORA, as yet, and he made one mistake in saying I had a specimen from Mount Aboo. All my Aboo specimens are *tiphia* (of the southern type). The specimen he referred to is labelled *Anadra*, Mount Aboo, but *Anadra* is down in the plains at the base of Aboo, and its avifauna is that of the semi-desert tracts of Western Rajpootana, while that of Aboo itself has strong southern affinities.

I have 30 specimens of this species :—

1 from Kutch, 2 from Deesa, 1 from Anadra, 5 from Sambhur, 1 from Koochawun, 1 from Agra (*1 from Muttra), 5 from Delhi, 6 from Etawah, 1 from Jhansi, 2 from Sambulpoor, 1 from Allygur, 2 from Meerut, and 2 from Saharunpoor.

Jhansi must be one point on the limits of its area of distribution, for I have six specimens of *tiphia* thence to only one of the present species. The same may be said of Etawah, whence I have two of *tiphia* to six of the present species.

Unfortunately, two years ago, when I weeded my unwieldy collection, I turned out numbers of indifferent specimens of *Ioras*, thinking that with 100 from various parts of India, 50 from various localities in Burmah, and 30 from different parts of the Malay Peninsular, all as I then thought of the same species I had all that could be required, but though *Ioras* have come in freely of late, I now feel the want of the 100 or more Upper Indian specimens that I rejected, and this want prevents my now defining more exactly the limits of the present species.

I may add, however, that Saharunpoor seems to be its northern limit, for from the Dhoon we have only *tiphia*; and

* This is in the Indian Museum.

from Jagadrie, in the sub-Sewaliks on the north of the Saharunpoor district, we also have only *tiphia*.

One remarkable fact, however, has to be noticed, and that is, that amongst a large series from Sambulpoor, belonging more or less to the intermediate race of *tiphia*, which is most strongly characterized at Jhansi, Saugor, &c., one male and one female *nigrolutea* appeared. Whether this is merely sporadic, or whether there is any extension of *nigrolutea* in this direction, I cannot say; if there is, it must be through Humeerpore, Banda, and north of Jubbulpore.

Setting this isolated case aside, Jhansi, Etawah and Saharunpoor mark points on the borders of its range, and we have no *tiphia* from any other of the localities from which I have noted *nigrolutea* (except Sambulpoor), nor from anywhere near any of these, except from Mount Aboo, which, as I have long since explained, is an outlying patch of a very different fauna to that which occupies the plains around it.

Nigrolutea is, therefore, a species with a defined area, within which, so far as we know, no other species of the genus occurs.

It is instantly and invariably distinguishable by the white on the tail. In the females always, and in the males during the non-breeding plumage, the two central feathers are almost wholly greyish white, the tips generally purer white, and the outer web often shaded with ashy. The rest of the tail feathers black, broadly tipped with pure white; this tip in the outermost feather on each side occupying the terminal one-third to, at times, one-half of the feather. In the breeding plumage the male has the white tippings to the lateral tail feathers more or less reduced, and the central tail feathers like the rest jet black, and white tipped.

I have been able to discover no trace of any intermediate forms, unless the tendency of Jhansi, Saugor, &c., birds to show bright yellow through the black of the upper back in the full breeding plumage may be so held, and which I hardly think, as I find a similar, though much less marked, tendency in some Mysore, Mount Aboo, and Ahmednagger specimens, and in a less degree still in others from Madras and other localities.

This species has constantly, though it is difficult to show this in figures, a smaller and shorter bill than *tiphia* from any part of India.

It has at all seasons more conspicuous and whiter margins to the secondaries and tertiaries and their greater coverts than has *tiphia* at the *same* season.

In this species the wings vary in adults from 2·4 to 2·6, but in only 3 out of 30 specimens do they exceed 2·55, and in only one out of 30 is the wing below 2·45.

The bill straight from point to its junction with the frontal bone varies from 0·55 to 0·67, but in 25 out of 30 specimens it does not exceed 0·6.

The breeding plumage seems to be assumed by the males in April, and by the commencement of November it has entirely disappeared.

The male assists in incubation. I have one in full breeding plumage shot off a nest with 4 eggs, at Etawah, by Brooks, on the 12th July 1870.

In breeding plumage* the male has the forehead, crown, occiput and nape, glossy black, the black terminating in a well-defined curved line; the chin, throat cheeks, ear-coverts, breast, sides of neck, and a broad half collar occupying the base of the back of the neck and the upper back, intense gamboge yellow, exactly the colour of the breast in Ceylon *tiphia* male, in breeding plumage. Rarely this collar is entirely uniform, generally a few of the central feathers are narrowly fringed at the tips with black, occasionally most of the feathers are so fringed. Mid back glossy black, rarely unbroken, generally with a little of the yellow (or towards the rump, greenish) bases of the feathers showing through; in one specimen with a great deal of this. Rump, pale greenish, the white bases of the feathers often showing through a good deal. Upper tail-coverts and tail, black, the former with a bluish gloss, the latter with all the feathers broadly tipped white, the white not unfrequently running some distance up the margin of the inner, and in a few cases of the outer webs also.

Coverts and tertiaries, black; both median and greater coverts, broadly tipped with white. In many specimens the tertiaries and the latest secondaries are *broadly* margined at the tips with white, but in some this is less conspicuous, and in some towards the close of the breeding season it is almost entirely wanting on the tertiaries. The primaries and secondaries, hair brown, more or less of the outer webs towards their bases, blackish, and margined on their outer webs very narrowly, in some more, in others less, conspicuously with white.

The abdomen is like the breast, but paler; in some with a greenish tinge towards the sides, and on its lower half, and in other cases looking (in skins) nearly white owing to the intermixture of the long silky white feathers of the flank tufts. Wing-lining and axillaries, and more or less of the inner margins of the quills, satiny white. A slight primrose tinge at the bend of the wing.

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* Captain Marshall's original description is not to my mind quite sufficient or satisfactory. He had to write it in a terrible hurry, and though he seized the essential particulars, I think his description may be improved.

The females and males in non-breeding plumage have the entire under-parts a pale mealy yellow, slightly shaded with olive green; the head is similar, but not quite so light; the nape and entire back similar, but much more strongly overlaid with olive green.

The wings and tail are as in the breeding season, except that the wings have the margins, specially of the tertiaries, very conspicuous, and much tinged with pale yellow; that the greater coverts often have pale yellow margins besides the white tips; and that the central tail feathers are almost entirely greyish white, tipped purer white, and with the outer webs in many specimens more or less shaded with ashy or occasionally olivaceous ashy.

A. O. H.

Appendix.

Review of Specimens examined in preparing the foregoing Notes on I. tiphia.

Ceylon	*male*	27·4	W. 2·55;	B.* 0·66	Upper surface olive green, fringed everywhere with black, but most strongly on occiput and back; lower wing bar very narrow; quill margins obsolete.
„	*fem.*	16-12	W. 2·45;	B. 0·7	Precisely similar to females from Singapore, Malacca, and Tenasserim from Mergui to Paphoon.
Rameswarum	*male*	17·3	W. 2·52;	B. 0·68	Entire upper surface black, except rump greenish yellow; no second wing bar; quill margins wanting.
„	*fem.*	17·3	W. 2·5;	B. 0·7	Absolutely identical with Ceylon females.
Anjango	„	?	W. 2·47;	B. 0·69	Precisely similar to previous female.
„	*male*	?	W. 2·55;	B. 0·67	Head, nape, middle of back, black; upper back and rump mingled black and green as in Ceylon specimen, but lower wing bar conspicuous; quill margins very small.
„	„	?	W. 2·47;	B. 0·63	Similar, but lower wing bar a good deal reduced, but not so much as in Ceylon specimen.
„	„	?	W. 2·54;	B. 0·68	Similar, but less green on the rump and upper back, and no lower wing bar, and quill margins wanting.
* Travancore	*fem.*	?	W. 2·46;	B. 0·69	Absolutely identical with Calcutta female.
* „	*male*	?	W. 2·4;	B. 0·7	In nearly typical plumage; only two spots on one wing remain of second wing bar; black of back a good deal mixed with yellowish green.

* Bill measured most carefully with compasses from frontal bone to tip of upper mandible.

* Travancore	*male*	?	W. 2·5;	B. 0·7	Similar, but more of second wing bar remaining, and less yellowish green on nape.
* Madura	„	?	W. 2·57;	B. 0·64	No second wing bar; head and nape black; entire back green, slightly pencilled with black.
Shimogah, Mysore.	„	26-5	W. 2·5;	B. defect.	Exactly like Rameswarum male, but rump darker and just a trace of lower wing bar; quill margins obsolete.
„	„	28-3	W. 2·61;	B. 0·67	Like first Anjango male, but showing a mixture of bright yellow on upper back; quill margins and white tippings to tertiaries and lower secondaries distinct though narrow.
Wynaad	„	?	W. 2·5;	B. 0·66	As in Ceylon ♂, but entire head jet black; second wing bar well marked; quill margins distinct though narrow.
Terriut Hills	„	24th May	W. 2·45;	B. 0·69	Crown green, a little shaded black; back of neck entire black, and rump olive green; the same colour that in all previous males has mingled with the black of the back; quill margins yellowish green, rather conspicuous (*shot off nest.*)
Wynaad, Terriut Hills.	*fem.*	24th May	W. 2·45;	B. 0·67	Precisely similar to previous females, but possibly a shade greener.
Nilgiris, Coonor.	*male*	9-3	W. 2·6;	B. 0·7	Precisely similar to previous females.
„	„	?	W. 2·55;	B. 0·69	Precisely similar to 1st Shimogah males.
„	„	17-2	W. 2·53;	B. 0·66	Precisely similar to 1st Anjango male, but second wing bar rather less marked and quill margins more distinct.
Nilgiris, Ottacamund.	„	?	W. 2·5;	B. 0·63	Precisely like females.
Nilgiris, Nedivuttum.	?	22-4	W. 2·43;	B. 0·7	Precisely like all females.
Madras,	*male*	?	W. 2·42;	B. 0·68	Similar to Ceylon male, but quill margins rather more marked.
„	*fem.*	?	W. 2·47;	B. 0·64	Precisely similar to previous females.
„	?	April	W. 2·46;	B. 0·7	Precisely similar to all females.
Sholapoor Dist.	*male*	19-9	W. 2·5;	B. 0·63	Wings, tail, crown, glossy black; forehead mingled greenish; back black, much mingled with greenish olive.
„	„	19-9	W. 2.5;	B. 0·7	Precisely similar to Cingalese, Bengal, Burmese, and Malayan females (*inv.*)
Rahuri, Ahmednugger.	„	14-4	W. 2·57;	B. 0·63	Precisely similar to the second Shimoga male, showing some yellow on the upper back.
Mahableshwar,	„	23rd May	W. 2·48;	B. 0·65	Apparently whole upper parts black, with lower back and rump yellowish olive; second wing-bar very inconspicuous; quill margins inconspicuous.
„	*fem.*	2-10	W. 2·4;	B. 0·7	Precisely similar to previous females.
Egutpoora,	*male*	4-10	W. 2·4;	B. 0·68	Ditto ditto (*inv.*)

(Head of Ghat). Mull	*male*	25·9	W. 2·5;	B. 0·7	Occiput black, rest of head and middle of back patched black.
„	„	juv. 25·9	W. 2·51;	B. 0·65	Young, precisely like females.
Matheran	?	1·11	W. 2·4;	B. 0·64	Similar to all females.
„	*male*	1·11	W. 2·4;	B. 0·7	Whole upper surface olive green, clouded with black, and a black patch in mid-back; quill margins, except of tail, almost obsolete.
Valley of Tapti	„	May '74.	W. 2·42;	B. 0·65	Like the Rameswarum male, but the quill margins are a little more apparent.
„	„	May '74.	W. 2·5;	B. 0·7	Same as the Matheran male, with the head black.
Mount Aboo		22·7	W. 2·5;	B. 0·63	Like first Wynaad male, but with lower wing bar and quill margins more obsolete, and showing a trace of yellow on the upper back.
„	*fem.*	22·5	W. 2·57;	B. 0·65	Like other females, but a clearer brighter yellow below and on face and forehead.
* Chanda	*male*	?	W. 2·55;	B. 0·72	Nearly *typical* zeylonica plumage, but second wing bar and colored margins to quills well marked; a good deal of yellowish green intermingled on nape and back.
* „	„	12·2	W. 2·5;	B. 0·68	Head mostly black; back green, a little patched with black.
* „	*fem.*	18·3	W. 2·55;	B. 0·66	Female of the slightly duller Saugor type.
50 miles north of * Chanda.	*male*	12·2	W. 2·57;	B. 0·65	Precisely like Ceylon females, but wings and tail black.
* „	„	2·2·	W. 2·53;	B. 0·65	Some black feathers about crown and occiput; wings and tail black; rest as in Ceylon females.
* Pranhita jungles.	„	?	W. 2·35;	B. 0·7	Breeding *zeylonica* plumage. Second wing bar nearly disappeared, a good deal of yellowish green mingled on nape and back.
Nagpore	„	23rd July	W. 2·6;	B. 0·65	Head and nape black; back mingled black and green and greenish yellow, much yellow on upper back.
Hoshangabad	„	1·8	W. 2·5;	B. 0·63	Like Ceylon male, but occiput glossy black, and crown and entire back and rump lighter, being less shaded with black.
† Below Puchmurrie.	„	12·2	W. 2·6;	B. 0·65	Precisely cold weather *typhia* plumage.
† „	*fem.*	12·2	W. 2·65;	B. 0·7	Of the dull Saugor type.
† „	„		W. 2·55;	B. 0·63	Ditto ditto.
Seoni	„	?	W. 2·5;	B. 0·65	Like Ceylon and other females, but more faded above and below and quill margins broader.
Saugor	„	16·7	W. 2·45;	B. 0·7	Like Seoni female.
„	„	17·7	W. 2·5;	B. 0·6	Ditto.
„	*male*	20·7	W. 2·5;	B. 0·64	Crown and nape black; upper back mingled pale yellow and black; rump pale yellowish green; second wing bar nearly obsolete; quill margins inconspicuous.

Saugor	*male*	10-7	W. 2·6;	B. 0·63 Head black; upper back pale yellow, shaded black; back and rump yellowish olive green, a little shaded black; wing bars and quill margins well marked.
„	„	30-7	W. 2·55;	B. 0·63 Similar to preceding, but more black on centre of back.
„	„	19-4	W. 2·5;	B. 0·63 Similar to preceding, but rather more black still.
„	„	6-5	W. 2·6;	B. 0·72 Like preceding, but much more black on back.
„	„	6-5	W. 2·55;	B. 0·64 Ditto ditto.
Jhansie	*fem.*	3-10	W. 2·55;	B. 0·67 Of the rather paler type of Seoni and Saugor females.
„	*male*	12-10	W. 2·5;	B. 0·65 Like female, but wings blacker and tail black, shaded with olive yellow at the tip.
„	„	9-10	W. 2·5;	B. 0·66 Ditto ditto.
„	„	27-10	W. 2·6;	B. 0·67 Ditto, but terminal half of central tail feathers, much shaded with olive yellow.
„	„	17-10	W. 2·25;	B. 0·68 Similar, but no shading on tail, and three or four black feathers still on crown.
„	„	August	W. 2·6;	B. 0·7 Plumage as in the first Saugor male.
Etawah	*fem.*	?	W. 2·5;	B. 0·68 Similar, but of the pale Saugor type.
„	*male*	? juv.	W. 2·5;	B. 0·7 Female plumage one new black feather of tail and tips of a few feathers on back and crown fringed blackish.
Nyashaher sub-Sewaliks.	*fem.*	?	W. 2·7;	B. 0·77 Ordinary female plumage.
Dehra Doon	*male?*	15-12	W. 2·45;	B. 0·7 Female plumage. Immature, if male.
Kumaon Bhabur	?	?	W. 2·55;	B. 0·76 Exactly like Ceylon female, but wings and tail black, the latter narrowly tipped with olive. Undoubtedly a male.
Kumaon Bhabur	*male*	30-1	W. 2·65;	B. 0·66 Precisely similar to preceding.
„	„	24-3	W. 2·5;	B. 0·73 Like preceding, but chin and throat more golden.
„	*fem.*	?	W. 2·5;	B. 0·75 Quite the same as the Ceylon female.
Gonda (Oudh)	„	Cold season	W. 2·45;	B. 0·7 Precisely like Ceylon female.
Raipoor, C.P.	„	12-5	W. 2·6;	B. 0·68 Of the slightly paler Seoni and Saugor type.
„	*male*	?	W. 2·53;	B. 0·65 Precisely similar to second Saugor male.
„	„	12-5	W. 2·55;	B. 0·7 Precisely similar to last Jhansie ♂.
† Sumbulpore	„	5-3	W. 2·5;	B. 0·65 Precisely like the Jeypoor male.
† „	*fem.*	24-1	W. 2·47;	B. 0·73 Slightly duller than Ceylon females.
† „	„	5-3	W. 2·4;	B. 0·72 Identical with Ceylon females.
† „	„	1-1	W. 2·5;	B. 0·72 Do. do.
† „	*male*	20-12	W. 2·6;	B. 0·73 Like Calcutta males of same season.
† Jeypoor of Vizianagram.	„	9-3	W. 2·6;	B. 0·7 Head, wings, tail, black; back green, patched black in middle, showing some bright yellow on nape.
† Bastar	*fem.*	18-3	W. 2·6;	B. 0·64 Of the rather duller Saugor type, not quite so dull as in these latter.

† Talchir	*male*	4-12	W. 2·5 ;	B. 0·71	Precisely like Ceylon females; a young bird.
† „	„	5-12	W. 2·6 ;	B. 0·69	Do. do.
† Atghur	*fem.*	17-11	W. 2·5 ;	B. 0·69	Identical with Ceylon females.
* Belaspoor	*male*	?	W. 2·6 ;	B. 0·7	Breeding plumage, second wing bar and coloured margins of quills strongly marked, much green intermingled on back.
* Maunbhum	„	20-12	W. 2·47 ;	B. 0·7	Absolutely like Ceylon ♀, but wings and tail black.
* „	*fem.*	20-12	W. 2·55 ;	B. 0·66	Absolutely identical with Ceylon females.
* Singbhum	„	26-3	W. 2·5 ;	B. 0·7.	
† „	*male*	1-4	W. 2·4 ;	B. 0·7	Occiput, nape and middle back much shaded with black; chin, throat and breast golden yellow.
† Hazareebagh	*fem.*	1-1	W. 2·42 ;	B. 0·7	Identical with Ceylon females.
Calcutta	„	January	W. 2·4 ;	B. 0·7	Precisely similar to Ceylon ♀.
„	„	29-12	W. 2·4 ;	B. 0·65	Same as preceding, but with faint dusky terminations to the feathers
„	„	31-1	W. 2·4 ;	B. 0·7	Like preceding.
„	„	21-12	W. 2·46 ;	B. 0·68	Do. but a trifle greener.
„	„	?	W. 2·4 ;	B. 0·73	Plumage same as first female (*i.e.*) inseparable from Ceylon ♀.
„	*male*	7-2	W. 2·5 ;	B. 0·72	Wings and tail black; head, back, and rump olive green; the feathers all tinged towards or fringed at the tips blackish, only conspicuous on the middle of back and on occiput.
„	„	January	W. 2·5 ;	B. 0·69	Like the Ceylon female, but faint traces of a dusky fringing to the feathers of the upper surface, and wings and tail black.
„	„	?	W. 2·55 ;	B. 0·7	Like preceding, but purer yellow beneath, and no trace of dusky fringing to feathers.
„	„	31-1	W. 2·5 ;	B. 0·7	Identical with preceding.
Samnuggur near Calcutta.	„	Spring	W. 2·47 ;	B. 0·69	Crown and upper back pencilled black; middle back largely patched black; chin and throat deep golden yellow.
* Calcutta		(twelve females, no date)	.....	.....	All precisely similar to females from other parts of India.
* „	*male*		W. 2·5 ;	B. 0·7	Upper plumage green, pencilled with black; two large black patches on back; and throat, intense yellow as in Ceylon specimens.
* „	„	January	W. 2·65 ;	B. 0·65	Upper suface green, pencilled with black; head a good deal tinged yellow; chin and throat intense golden yellow.
* „		(four males, no date)	.....	.....	Precisely like Ceylon females, but wings and tails black.
„	*male*	28-8	W. 2·6 ;	B. 0·65	
„	„	Do.	W. 2·5 ;	B. 0·62	
„	„	Do.	W. 2·45 ;	B. 0·67	Typical *tiphia*; head and back a little fringed black.
„	„	Do.	W. 2·43 ;	B. 0·7	
„	„	24-8	W. 2·5 ;	B. 0·55	
„	„	Do.	W. 2·45 ;	B. 0·65	
„	„	Do.	W. 2·57 ;	B. 0·63	Similar, but with large black patches on middle of back.
„	„	Do.	W. 2·5 ;	B. 0·68	
„	„	Do.	W. 2·47 ;	B. 0·68	

Calcutta	*fem.*	24-8	W. 2·47;	B. 0·65	No black on back; occiput patched black.
„	„	Do.	W. 2·47;	B. 0·62	Identical with Ceylon females.
„	„	Do.	W. 2·45;	B. 0·61	
„	„	Do.	W. 2·5;	B. 0·55	
„	„	Do.	W. 2·4;	B. 0·7	
„	„	Do.	W. 2·5;	B. 0·62	
„	„	Do.	W. 2·47;	B. 0·67	
„	„	Do.	W. 2·4;	B. 0·63	
„	„	Do.	W. 2·47;	B. 0·7	
„	„	Do.	W. 2·45;	B. 0·7	
„	„	Do.	W. 2·55;	B. 0·68	
„	„	Do.	W. 2·47;	B. 0·67	
„	„	Do.	W. 2·42;	B. 0·62	Similar, but all feathers of crown and back obscurely fringed dusky, as in the case of males, but undoubtedly a female.
Dacca	*male*	?	W. 2·6;	B. 0·8	Precisely similar to preceding.
Bhootan Doars	„	January	W. 2·6;	B. 0·75	Identical with the Ceylon ♀, but wings and tail black.
„	*fem.*	Do.	W. 2·55;	B. 0·78	Absolutely identical with Ceylon ♀.
„	*male*	February	W. 2·5;	B. 0·67	Like first Calcutta January ♂; tail tipped with bright olive green.
Lallgung, Tirhoot.	„	22-4	W. 2·6;	B. 0·7	Absolutely like the last male.
Sarun	„	15-3	W. 2·65;	B. 0·67	Like preceding.
„	„	22-3	W. 2·6;	B. 0·7	Similar to preceding.
Commillah, Tipperah.	*fem.*	March ?	W. 2·47;	B. 0·7	Precisely like Ceylon females.
„	„	Do.	W. 2·4;	B. 0·71	Do.
„	„	Do.	W. 2·4;	B. 0·63	Do.
„	„	Do.	W. 2·4;	B 0·7	Do.
„	„	Do.	W. 2·4;	B. 0·67	Do.
„	? „	Do.	W. 2·45;	B. Impft.	Do.
„	„	Do.	W. 2·5;	0·7	Like female, but paler and washed out—a young bird.
„	*male*	Do.	W. 2·4;	0·68	Precisely similar to last Calcutta ♂
Cachar	„	?	W. 2·5;	B. 0·8	Precisely similar to cold-season Calcutta males.
*Garrow Hills	*fem.*	?	W. 2·5;	B. 0·7	Identical Ceylon females.
Suddya, Assam.	*male*	31-4	W. 2·5;	B. 0·7	Precisely similar to second January Calcutta male, but with here and there a little black fringing at the middle of back.
„	*fem.*	31-4	W. 2·6;	B. 0·68	Absolutely identical with Ceylon female.
„	*male*	?	W. 2·6;	B. 0·68	Olive green above, but black patch in centre of back, and feathers of occiput very narrowly fringed with black.
*South of Irrawaddy.	„	?	? 3	W. 2·6;	B. 0·69	Precisely similar to Ceylon female, but wings and tail black, and yellow of breast a shade brighter.
*	„	*fem.* ?	3	W. 2·42;	B. ?	Same as Ceylon female, but a shade greener below.
*	„	*male* ?	3-3	W. 2·52;	B. 0·65	Same as first—male.
Akyab	„		20-3	W. 2·45;	B. 0·6	Precisely like Ceylon male, but black fringing much less conspicuous. Second wing band very broad; quill margins conspicuous.

Rangoon	*male*	13-2	W. 2·5;	B. 0·65	Absolutely inseparable from Ceylon male, except that it has slightly more black on the occiput.
"	"	13-2	W. 2·4;	B. 0·65	Similar to two preceding, but intermediate between them as regards the amount of black on head and back.
Elephant Point	*fem.*	12-1	W. 2·4;	B. 0·61	Upper surface as in Ceylon female; lower surface dirtied, so that colour cannot be ascertained.
Kolidoo	"	4-2	W. 2·07;	B. Impft.	Plumage rather paler than Ceylon female.
"	*male*	22-1	W. 2·07;	B. 0·67	Plumage precisely that of Ceylon female, but wings and tail black, the latter margined at tips with bright olive green.
"	"	22-1	W. 2·65;	B. 0·65	Ditto. ditto.
"	"	22-1	W. 2·68;	B. 0·73	Similar, but faint dusky tippings to feathers of head.
Paphoon	*fem.*	9-1	W. 2·45;	B. 0·66	Identical with Ceylon female.
"	"	9-1	W. 2·5;	B. 0·69	Do.
"	"	30-12	W. 2·5;	B. 0·65	Do.
"	*male*	9-1	W. 2·5;	B. 0·73	Like Ceylon female, but wings and tail black, and tips of back feathers inconspicuously blackish.
"	"	30-12	W. 2·7;	B. Impft.	Do.
Thatone Creek	*fem.*	9-12	W. 2·4;	B. 0·69	Identical with Ceylon female.
Moulmein	*male*	4-3	W. 2·55;	B. 0·7	Young—identical with females, except that the lateral tail feathers have the great deal of the inner webs pure blackish brown, conspicuously margined externally with pale yellow.
"	?	October	W. 2·55;	B. 0·68	Identical with all females.
"	*male*	18-3	W. 2·55;	B. 0·7	Above olive green; all the feathers narrowly fringed with black, the fringing becoming patches on the middle of the back; chin and throat the same intense yellow of Ceylon, Paunben and Southern males in spring.
"	"	4-3	W. 26;	B. 0·63	Similar, but rather less black on back, more on occiput, yellow a little less bright.
Yeaboo	"	11-3	W. 2·5;	B. 0·65	Crown and anterior part of forehead unusually yellow; occiput and back green, largely patched with black.
"	"	10-3	W. 2·6;	B. 0·7	Forehead and crown very yellow; back olive green; feathers very narrowly margined blackish.
Kohbang	"	15-3	W. 2·47;	B. 0·7	In abraided plumage of female, tail, almost olive brown; a few new bright yellow feathers on chin and throat.
Yea	*fem.*	30-3	W. 2·45;	B. 0·67	The plumage absolutely identical with the Ceylon female.
Between Amherst and Moulmein.	*male*	22-3	W. 2·5;	B. 0·67	Back, olive green of the female, but slightly darker, and one small black patches on two side of back.

Amherst	*fem.*	9·3	W. 2·5;	B. 0·63	Plumage identical with Ceylon female.
	male	6·1	W. 2·42;	B. 0·69	Similar to the next preceding male, but several black patches on back, and the yellow of throat rather brighter
Meetan	*fem.*	8·2	W. 2·5;	B. 0·7	Like Ceylon female.
Tavoy	?	26·5	W. 2·45;	B. 0·64	Sexed female, but almost certainly young male; plumage faded and abraided, with olive green, nearly worn off the frayed tail feathers.
"	*male*	14·4	W. 2·5;	B. Impft.	Similar to last, but one new pure black tail feather half grown.
"	"	13·5	W. 2·5;	B. 0·6	Forehead and crown rather yellow; rest of upper parts olive green, only a little shaded with black and a few small spots of the latter on the back.
"	"	14·5	W. 2·55;	B. 0·65	Differs from the last in having the occiput and nape nearly black, and in exhibiting a yellow half collar on upper back; the tips of the feathers fringed with the black shaded olive green of the middle back
"	"	14·5	W. 2·5;	B. 0·67	Like first, but a trifle more black on the back.
"	"	14·4	W. 2·48;	B. 0·7	Like first, but without a spot even of black on the back.
					N.B.—All these four have the chin, throat, and breast the same intense yellow as in Southern Indian breeding males.
Bopyin	*fem.*	20-12	W. 2·5;	B. 0·68	Plumage undistinguishable from Ceylon female.
"	*male*	21-12	W. 2·5;	B. 0·65	Upper surface plain olive green, not distinguishable from that of the Ceylon female.
Tenasserim tn.	"	27-11	W. 2·5;	B. 0·7	Exactly like preceding.
Mergui	*fem.*	12-6	W. 2·4;	B. 0·69	Identical with Ceylon specimens.
"	"	8·6	W. 2·4;	B. 0·7	Ditto.
"	*male*	7·6	W. 2·4;	B. 0·68	Only the slightest fringing of black on the middle back Chin and throat not quite such bright yellow as in Tavoy males.
"	"	12·6	W. 2·45;	B. 0·7	Back more shaded with black and with one or two black patches.
Pabyin	*fem.*	15-11	W. 2·5;	B. 0·6	Like Ceylon female.
Penang	"	27-11	W. 2·4;	B. 0·62	Identical with Ceylon female.
* Wellesley Prov.	"	?	W. 2·47;	B. 0·73	Similar to Ceylon females.
* "	*male*	?	W. 2·37;	B. 0·7	Precisely similar to Ceylon ♂, but rather less black on back.
* "	*fem.*	?	W. 2·37;	B. 0·71	Like all females.
Malacca	?	?	W. 2·5;	B. 0·7	Female plumage, apparently young ♂, olive wearing off tail.
"	*male*	?	W. 2·47;	B. 0·7	Ordinary non-breeding plumage, but central tail-feathers overlaid with olive green on terminal halves and exterior halves of basal halves of outer webs.
"	*fem.*	?	W. 2·55;	B. 0·66	Absolutely identical with Ceylon specimen.

Malacca	*male* s				Nine specimens; dates uncertain; wings 2·45, 2·55, 2·42, 2·49, 2·56, 2·52, 2·45, 2·47, 2·48. Bills 0·66, 0·68, 0·6, 0·71, 0·7, 0·69, 0·7, 0·73, 0·64. All matchable with Southern Indian specimens in different stages, some with a great deal of black on crown and back. All showing more black than in typical *tiphia*, and none in quite the full *zeylonica* plumage. In no specimen is yellow of throat more golden than in the Rameswaram male.
	fem. s				Seven specimens; dates uncertain; inseparable from Cingalese and Bengal females.
Nealys, 31 m. for Malacca.	*fem.*	6-10	W. 2·4;	B. 0·65	Identical with Ceylon specimen
,,	*male*	17-10	W. 2·65;	B. 07	May be said generally to be precisely similar to a Ceylon female, except for having black wings and tail. Three of them, however, are just perceptibly greener, and of these three, one has a little black shading on the back, one is appreciably greener, two absolutely identical. The first specimen has the tip of the tail much overlaid with olive green.
,,	,,	19-10	W. 2·5;	B. 0·65	
,,	,,	6-10	W. 2·6;	B. 0·69	
,,	,,	6-10	W. 2·52;	B. 0·62	
,,	,,	6-10	W. 2·5;	B. 0·73	
,,	,,	6-10	W. 2·63;	B. 0·66	
Pulo Seban, 22 m. from Malacca.	,,	10-11	W. 2·42;	B. 0·6	Above olive green; all the feathers fringed at the tip with black, forming an irregular black mottling on crown, nape and back.
,,	*fem.*	27-10	W. 2·52;	B. 6·3	Identical with Ceylon female.
Singapore	*male*	7-8	W. 2·37;	B. 7·0	Like a Ceylon female, but rather greener and paler below.
,,	,,	7-8	W. 2·4;	B. 0·7	Entire back jet black; hinder part of crown, occiput and nape dark olive green; feathers conspicuously fringed black at the points. Absolutely undistinguishable from some Southern Indian males.
,,	,,	7-8	W. 2·45;	B. 0·62	Similar to Pulo Seban male.
,,	,,	23-9	W. 2·55;	B. 0·6	Olive green, slightly shaded, but no where spotted with black. *N.B.*—In none of these specimens can the yellow be correctly said to be a bit more golden than in many breeding males from Anjango, Mysore, Paunben and Ceylon.
Palimbong (Sumatra).	*fem.*	?	W. 2·55;	B. 0·65	Identical with Ceylon specimen.
,,		?	W. 2·47;	B. 0·63	Ditto.
	male	?	W. 2·65;	B. 0·7	Absolutely identical with second, January Calcutta male.
Banjermassing (Borneo.) ?	*fem.*	26-2	W. 2·45;	B. 0·68	Precisely like all females.
Tugal** ? (Java).	,,	?	W. 2·5;	B. 0·69	A shade greener I think than any other.
	? *male*	?	W. 2·48;	B. 0·63	Identical with Ceylon.
	,,	?	W. 2·6;	B. 0·65	Identical with first Calcutta male.

[*N.B.*—Specimens to which a * is prefixed were kindly lent me from the Indian Museum by Dr. Anderson, the Director; those to which a † are prefixed were lent me by Mr. Ball. The rest are in my own museum.]

** Name not distinctly legible.

Notes on the Nidification of some Burmese Birds.

By W. Davison.

Though not endowed by nature with the peculiar gift for nest-finding that some people possess, still I have, during the four years I have been collecting birds in the Tenasserim Province for Mr. Hume, come across the nests of a good many birds, though I have never devoted any time specially to this object, and consequently I have but few *species* to notice.

Some of the nests, to which I propose to refer, do not appear to have been before obtained; others have already been described by Mr. Oates or Captain Bingham, and I notice them only because my observations do not quite correspond with theirs'.

56 *ter*.—Milvus affinis, *Gould*.

I obtained two eggs of this Kite at Moulmein on the 5th of January of this year. In appearance they are quite similar to many of those of *M. govinda*; and, as is not unfrequently the case with Kites' eggs, though both were taken from the same nest, they are very dissimilar in appearance—one being blotched and spotted, but only at the large end, with a dark umber-brown, some of the spots and blotches being almost black; the rest of the egg is sparsely spotted and blotched (but the blotches are small) with a paler brown. The markings on the other egg, which are also at the large end, consist of a medley of streaks and scratches and irregular spots of a rusty brown, the whole of the remainder of the surface being covered with numerous scratches of a very pale inky purple, and a few very faint spots of a pale rusty brown. These two eggs measure 2·11 by 1·71 and 2·08 by 1·7.

The nest, the usual shallow saucer of dry twigs, &c., was placed in a moderately high tree, about 30 feet from the ground.

114.—Caprimulgus monticolus, *Frankl*.

On the 10th of March 1875, at Yeaboo on the Attaran, I shot a female of this species off two eggs. The eggs were laid on the bare ground in a slight depression at the foot of a tree. The tract of jungle in which these eggs were taken was very dry and thin, being composed of moderate-sized deciduous leaved trees, interspersed with thorny bamboos and brambly shrubs, with little or no undergrowth.

* "The eggs are somewhat elongated but very perfect ovals, very obtuse at both ends. The shell is fine, and they have a

* I transcribe this and other descriptions with the author's permission from the new MSS. Edition of Mr. Hume's "Nests and Eggs."

fair amount of gloss. The ground color is a rich salmon pink, and they are blotched, streaked and mottled with dull red which has a slight brownish tinge. Besides these primary markings numerous clouds and marblings of pale inky purple or neutral tint are scattered about the egg; but in each egg they are most numerous about one end, where also the primary markings are most dense. Of these two eggs, taken at the same time out of the same nest, one is more than a tenth of an inch longer than the other, though in breadth they differ only in one-fiftieth of an inch. They measure 1·11 by 0·87 and 1·22 by 0·89."

114 *bis*.—Lyncornis cerviniceps, *Gould*.

On the morning of the 10th January 1875, while passing through some thin tree jungle, almost free from brush-wood, close to the village of Malawoon, I flushed a *Lyncornis* from the foot of a large tree. The bird sat very close, not moving till I was within a couple of yards of her. On looking down at the spot from which she rose, I found one egg lying on the bare ground, without any attempt at a nest, or even depression to prevent the egg from rolling away, which it easily might have done, as the spot where it was laid was slightly raised above the surrounding level. A few of the bird's richly marked feathers lay about the spot on which the egg lay, and a few inches all round was perfectly dry, while all the surrounding ground was quite wet with the dew of the preceding night, so that the bird must have sat on the egg the whole or greater portion of the night.

The egg was quite fresh, so the bird probably lays more than one.

"The egg of this species is, as might be expected, quite of the Goatsucker type. In shape it is a long, somewhat cylindrical, oval; the shell is fine and has a fair gloss, but when looked into closely, exhibits a vast number of minute pores; the ground color is a pale delicate pinky cream color, and it is pretty thickly marked with large irregular blotches and splashes of very pale lilac grey, looking much as if they lay beneath the surface of the egg."

"This egg measures 1·65 by 1·18."

116 *ter*.—Harpactes oreskios, *Tem*.

On the 11th of February I took my first nest of *Harpactes oreskios* containing two fresh eggs. The eggs were laid on a few chips of decayed wood at the bottom of a hole scooped out (evidently by the birds) at the top of a decayed stump, about 4 feet high, and was placed on the very edge of the path.

The following day I took two more nests, each containing three eggs, slightly incubated. One was in an exactly similar position to the first nest, but the other was in a bit of dead wood, about 9 inches long that was stuck in a creeper, and was about 12 feet above the ground.

There is no doubt that the nest holes are hollowed out, or at any rate enlarged, by the birds themselves. Besides the three nests I obtained with eggs, I found several more without eggs, and in one instance actually saw the hen trogon at work excavating the hole. A very rotten stump is chosen, so that the bird can without difficulty chip out the wood.

The eight eggs I took vary much in shape and size—two from one nest and three from another, are very short and broad, while three from another are very long and narrow. They are all of the same color, a delicate pale *cafe au lait*, almost the same color as the eggs of *Chalcophaps indica*, and vary from 0·99 to 1·18 in length by 0·8 to 0·86 in breadth.

Captain Bingham has also obtained the eggs, *vide* S. F., V., p. 50. Referring to Mr. Hume's remarks, V., p. 83, I think that the full number of eggs laid by this species is three. A nest that I found, however, containing young had only two of these.

139.—Serilophus lunatus, *Gould.*

This species breeds, I should say, from April to July. On the 4th of April, at the village of Om-ben-gwen on the road to Tavoy from Moulmein, I found a nest of this species, shooting the female as she left it.

The nest was empty and not completely finished; it was built at the end of a small branch overhanging a stream, and in appearance was like that of a huge nest of *Arachnecthra asiatica.*

At Amherst, on the 11th July, my Burman Shikaree brought me four partially-incubated eggs, together with the female bird shot off the nest. Unfortunately he had destroyed the nest (thinking it of no value), but he described it as a moderately large globular mass of dry grass, small twigs and dead leaves, with the entrance on one side, suspended from the extreme tip of a branch of a bush about four feet from the ground.

The nest was found in thin tree jungle at the base of the hills. The dimensions he gave would make the nest about 6 inches in diameter and 7 to 8 high.

On the 28th July I found an old nest clearly belonging to this species. The young had flown, but in the nest was one addled egg, pure white and similar in shape to those brought to me, but somewhat smaller—no doubt one of those abnormally

small and unfecundated eggs continually laid by birds of all species.

The nest was suspended to the extreme end of a [illegible] branch overhanging a stream, the bottom of the nest being about 3 feet above the surface of the water. It was about 2 feet in total length; at about 15 inches from the point of suspension, the suspending portion of the true nest branched into two, meeting the nest at opposite sides, like a very broad handle to a basket, and leaving, as it were, two wide openings to the nest. Probably the nest had originally only one entrance; but, as the young grew, it was found that there was not room for them all to perch (as young birds delight in doing) on the edge of the original entrance, so another opening was effected on the opposite side, thus giving the nest its basket-like appearance.

"The eggs are rather elongated ovals, very decidedly pointed towards the small end. The shell is fine and compact, but has only a very faint gloss.

"The colour is pure white.

"The eggs vary from 0·92 to 0·97 in length, and from 0·67 to 0·69 in breadth."

139 *ter*.—Eurylaimus javanicus, *Horsf.*

This present species breeds in March. On the 21st of that month I took a nest on the banks of the Bankasoon Choung. It was suspended to the extreme tip of a very tall bamboo overhanging the stream. It was a massive structure, composed of moss, fibres, roots, dry leaves, bits of wood, and small twigs. It measured in total length 23 inches by 9 at the broadest part. The lower edge of the entrance hole, which measured 2·75 inches in diameter, was 5 inches from the bottom of the nest, and placed at one side. The egg-cavity was about 3 inches deep by about 3 wide, and thickly lined with dry bamboo leaves.

The nest contained two fresh eggs.

"The eggs are moderately elongated ovals, somewhat compressed towards the small end, but not pointed there, on the contrary rather obtuse. The shell is very fine and fragile, but it has no perceptible gloss. The ground color is a dull white, and is thickly speckled with minute spots and specks of rusty brown. These specklings are most numerous towards the large end, where in one egg they form an irregular mottled almost confluent zone; in the other they only form a large irregular patch at one side of the broad end of the egg. I do not know any other Indian egg for which this could be mistaken.

"The eggs measure 7·09 by 0·76, and 1·03 by 0·74."

139 *quint.*—Cymborhynchus macrorhynchus, *Gm.*

I have never been fortunate enough to obtain the eggs of this species though I have found several nests but all with young. The nest resembles that of *E. javanus*, and like it is attached to the extreme end of a branch or bamboo overhanging water. I have found the nests from April to June—three young in each.

345 *bis.*—Pitta moluccensis, *P. L. S. Müll.*

Vide S. F., V., 150, where Mr. Hume has already described the nest and eggs obtained by me at Amherst.

346.—Pitta cuculata, *Hartl.*

On the 12th of July 1875 I found a nest of the Green-breasted Thrush at Amherst.

The nest was in rather thick tree jungle at the base of the hills, placed on the ground at the root of a small tree and partially hid from view by grass. It was composed of dry twigs and leaves, resting on a thick foundation of dead leaves, and lined with fibres. It was a globular structure, with a circular opening about mid way on one side; the roof of the nest projected over the entrance about 2·5 inch, forming a canopy or portico over it. It was very loosely put together, at least the outer portions of it, and measured 10 inches in diameter by 9·5 inches in height—the entrance having a diameter of 3·5 inch.

At the base of the entrance was a platform composed of twigs and loosely put together, and about four inches wide, which sloped gradually to the level of the surrounding ground, the top of the platform being nearly on the same level as the bottom of the egg-cavity. The nest contained four eggs, very much incubated.

"The eggs are of the pure *Pitta* type—broad ovals with a spherical tendency, (not so strongly marked, however, as in *coronatus*), glossy and with a pure white ground, more or less thickly speckled, spotted, and marked with small angular, at times hieroglyphic-like, blotches, streaks or lines of purple, redder, or again more lilac in some, or deeper and more chocolate in others. The markings, always apparently most dense at the larger end, are occasionally almost entirely confluent, and often form there an irregular, speckly, spotty cap. At the small end the markings seem to be always fewer and smaller, and in some eggs are almost wholly wanting."

"In length the eggs vary from 1·04 to 1·1, and in breadth from 0·82 to 0·86."

403 *bis.*—Pomatorhinus olivaceus, *Blyth* (*v. ante* p. 137.)

I found a nest of this bird on the morning of the 21st January 1875 at Pakchan, Tenasserim Province, British Burmah. It was placed on the ground at the foot of a small screw pine, growing in thick bamboo jungle; it was a large globular structure, composed externally of dry bamboo leaves, and well secreted by the mass of dry bamboo leaves that surrounded it; it was in fact buried in these; and, if I had not seen the bird leave it, it would most undoubtedly have remained undiscovered. Externally, it was about a foot in length by 9 inches in height, but it was impossible to take any accurate measurement, as the nest really had no marked external definition. Internally, was a lining, about half an inch thick, composed of thin strips of dry bark, fibres, &c. The entrance was to one side, circular, and measuring 2·5 inches in diameter. The egg-cavity measured 4 inches deep by about 3 in height.

In the nest were three pure white ovatopyriform eggs, but so far incubated that they would probably have hatched off before the day was out.

The measurements of two were 1·1 and 1·09 in length by 0·75 in breadth.

429 *quat.*—Sibia melanoleuca, *Tick.*

I secured a nest of this species on the 21st of February, containing two spotless pale blue eggs, slightly incubated. The nest, a deep compactly woven cup, was placed about 40 feet from the ground in the fork of one of the smaller branches of a high tree growing on the edge of a deep khud (or ravine.)

The egg-cavity of the nest is lined with fern roots, fibres and fine grass stems; outside this is a thick coating of dried bamboo leaves and coarse grass, and outside this again is a thick irregular coating of green moss, dried leaves, and coarse fibres and fern roots.

Externally, the nest measures about 5 inches in height and nearly the same in external diameter at the top.

The egg-cavity measures 1·7 deep by 2·7 across.

The eggs, a pale spotless blue, measure 0·95 and 0·98 in length by 0·66 and 0·68 in breadth.

567.—Reguloides viridipennis, *Blyth.*

An account of this nest has already been given in Stray Feathers, *vide ante*, p. 333. The three eggs there mentioned measured —0·59 and 0·6 in length by 0·49 in breadth.

619.—Minla castaneiceps, *Hodgs.*

On the 20th of February, when encamped just under the [s]mit of Mooleyit on its North-West slope, I found a nest of *Minla castaneiceps*, containing three eggs, but so hard set, that it was only with the greatest difficulty that I managed to preserve them.

The nest, a deep cup, was placed about 5 feet from the ground in a mass of creepers growing up a sapling. It (the nest) was composed externally of green moss, and lined with fibres and dry bamboo leaves.

On the 29th of the same month I took another nest also containing three eggs, precisely similar to those in the first nest, but these were so far incubated, and the shell was so fragile, that they were all lost.

This nest was also composed externally of green moss, beautifully worked into the moss growing on the trunk of a large tree, and it was only with considerable difficulty and after looking for some time that I found it. The egg-cavity of this nest was also lined with fibres and dried bamboo leaves.

The first nest found was open at the top and measured 5·5 in depth, 3·0 across the top externally; the egg-cavity 3·5 in depth by 1·8 in diameter at top.

The second nest was completely domed at the top, and measured externally 7 inches in depth by about 3·5 at top; the egg-cavity 2·5 inches deep by 1·5 across the mouth.

Three eggs measured 0·7 to 0·75 in length and 0·55 to 0·59 in breadth.

"The eggs are broad ovals, a little pointed towards the small end; the shell white, almost devoid of gloss; a dense ring or zone of excessively small black spots surrounds the large end, and similar specks are rather sparsely distributed over the whole of the rest of the surface of the egg, having however a tendency to become obsolete towards the small end; sometimes a little brown and sometimes a little lilac is intermingled in the zone."

622 *bis.*—Proparus dubius, *Hume.*

On the 21st of February I took a nest of this species containing two eggs, and out of the female, which I shot off the nest, I took another egg, ready for expulsion, which was in every particular precisely similar to those in the nest.

The nest was a large globular structure, composed externally of dried reed leaves, very loosely put together; the egg-cavity deep and lined with fibres. It was placed on the ground close to a rock, and at the foot of a Zinziberaceous plant, and rather exposed to view. The nest was not unlike that of *Pomatorhinus*, but of course considerably smaller, not so domed, and with the mouth of the egg-cavity pointing upwards.

A few days later, on the 25th, I took a second nest, quite similar in shape and materials to the first one, but placed several feet above the ground in a dense mass of creepers growing over a rock. It was quite exposed to view, and from a distance of 3 or 4 feet the eggs were quite visible.

There were three eggs in the nest similar to those in the first nest. Both parent birds were obtained. The first nest measured 5 inches long by 4·5 wide; the egg-cavity 3·8 deep by 2·75 wide at the entrance. The other was about half an inch smaller each way.

"The measurements of the six eggs varied from 0·76 to 0·81 in length by 0·56 to 0·6 in width, but the average is 0·78 by 0·59.

"The eggs are rather narrow ovals as a rule, occasionally much pointed towards one end. The shell is very fine, and has a faint gloss; the ground color is white. The markings, which are difficult to describe, consist first of spots, specks, and hair-line scratches, dark brown, almost black occasionally, and a great amount of irregular clouding, streaking, and smudging of a pale dirty brown, slightly reddish in some eggs. Besides this, about the large end, there is an indistinct irregular zone of faint inky purple spots and small blotches, and a few spots of this same color may be observed on other parts of the egg."

701 *bis.*—Munia leucogastra, *Blyth.*

On the 25th of April last I took a nest of this species in dense forest between Malawoon and Bankasoon, and about six miles from the nearest open ground. The nest was a globular structure, about 7 inches long by about 6 wide at the broadest part, and was composed of dry grass and bamboo leaves, and lined with finer grass stems and a few fibres, and placed in the fork of a sapling, about 7 feet from the ground. It contained a single white egg, similar to that of *M. acuticauda.*

781 *ter.*—Carpophaga griseicapilla, *Wald.*

While ascending the North-West slope of Mooleyit on the 27th of January, I flushed a pigeon (which I shot) off her nest, in a small sapling growing close to the path, but in very heavy virgin forest. The nest was the usual pigeon type of nest, a mere apology of a few dry twigs loosely put together. The nest contained only one fresh egg, but the female on dissection showed no signs of being about to lay another, so it is probable that one is the normal number of eggs laid by this species. This egg is of course pure white and glossy, nearly the same thickness at both ends, but a little pointed towards the smaller end. It measures 1·61 in length by 1·15 in width.

Corvus macrorhynchus, *of Wagler.*

Mr friend, Mr. Sharpe, in his admirable Catalogue, Vol. III., separates the Large-billed Crows of India, Burmah and the Malay Peninsula into two species and one sub-species. The one species he designates *culmenatus*, with which he concurs with me in uniting *intermedius*. The second species he takes as *macrorhynchus*, Wagler, with *levaillanti*, Less., as a sub-species.

The first he places in the genus *Corvus*; the two second in the genus *Corone*.

Now, the primary distinction between Mr. Sharpe's genus *Corvus* and his genus *Corone* are these—

Corvus.—First primary long, equal to, or exceeding the, innermost secondaries in length.

Corone.—First primary longer than the ordinary secondaries, but not as long as the innermost of the latter.

These, then, are the primary differences by which we are to diagnose *Corvus culmenatus* on the one hand, and *Corone macrorhyncha* and *levaillanti* on the other, and these two latter are to be distinguished, *inter se*, by *macrorhyncha* having pure white bases to the feathers which *levaillanti* has not.

Besides this, while admitting that *levaillanti* and *macrorhyncha* are undistinguishable by dimensions (though the bill in the latter is supposed to average larger) he clearly considers that *culmenatus* is much smaller, and he gives us a number of careful measurements, which serve to illustrate his view, a *resumé* of which I reproduce, omitting only the length, to which, as taken from skins, I attach no value.

Dimensions according to Mr. Sharpe.

Species.	No. of Specimens measured.	Localities.	Dimensions. Culmen.	Wing.	Tail.	Tarsus.
C. culmenatus...	5	Deccan, Madras, Himalayas ... Behar, Nepal ...	2·15-2·6	11·0-11·82	6·5-7·5	2·1-2·2
C. macrorhyncha	11	Bali, Malacca, Penang... East Java, Sumatra ... Flores, East Timor ... Samoa Timor ...	2·6-3·0	12·1-14·45	7·2-9·5	2·1-2·45
C. levaillanti ...	27	India, North India, ... Afghanistan, Kuloo, Nynee Tal ... Nepal, Andamans, Bhamo ... Taping, Tsit-kan, Ponsee Yunan, China, Fokien ... Hainan, Ussuri R. ...	2·2-2·85	11·5-14·35	7·3-9·3	2·05-2·5

I have always hitherto considered that these *three* supposed species were founded upon larger and smaller examples of one and

the same species; but Mr. Sharpe has now pointed out a structural difference which, if constant, will quite suffice to justify our accepting *two* species at any rate, and he has suggested that I should re-examine my series, as this will, he believes, demonstrate that Dr. Jerdon was correct in admitting *intermedius* as distinct from *levaillanti*—Mr. Sharpe, as I gather, being of opinion that the bird called *culmenatus* by Dr. Jerdon is *levaillanti*, and that *intermedius*, of Adams, is identical with the true *culmenatus*, of Sykes.

Now the series in our museum is not at all what it should be, because I have, for some years, been so convinced of the specific identity of all the crows of *this* type in India, Burmah, and the Malay Peninsula, that I have restricted somewhat the number of specimens of these rather bulky birds. Still, inadequate as it is, I proceed to examine it carefully, recording, in regard to each specimen, not only dimensions corresponding with those given by Mr. Sharpe, but also the relation of the first primary to the innermost secondaries, whether equal, longer or shorter, and in the two latter cases by how much, and also the color of the bases of the feathers.

	Locality.	Sex.	Culmen.	Wing.	Tail.	Tarsus.	Relation of 1st Primary to Innermost Secondaries.	Base of Feathers of Mantle.	REMARKS.
1	Ootacamund ...	Male	2·4	12·65	6·8	2·15	0·98 shorter ...	Grey ...	In perfect plumage; all secondaries precisely the same length; tertiaries shorter than secondaries.
2	Ootacamund ...	Female	2·32	11·45	7·1	2·01	0·3 shorter ...	Greyish white ...	1st quill longer than all the secondaries, but shorter than the longest tertiary, which I understand Mr. Sharpe to mean by the innermost secondaries.
3	Ootacamund ...	Male	2·55	12·2	7·4	1·97	0·45 shorter ...	Grey ...	1st quill shorter than any of the secondaries; hindermost true secondaries slightly longer than anterior ones; tertiaries shorter.
4	Ootacamund ...	Female	2·25	11·96	7·9	2·06	1·03 shorter ...	Grey ...	1st primary longer than earliest secondary, equal to last true secondary; 1st tertiary considerably longer than last true secondary.
5	Ootacamund ...	„	2·15	11·75	8·2	2·03	1·3 shorter ...	Greyish white ...	1st primary much shorter than all secondaries.
6	Ootacamund ...	Male	2·48	12·15	8·2	2·05	1·1 shorter ...	Grey ...	1st primary shorter than earliest secondary; latest true secondaries much longer than earliest ones; longest tertiary a shade shorter than last secondary.
7	Ahmednugger ...	Female	2·38	11·53	7·6	2·03	1·0 shorter ...	Greyish brown ...	1st secondary longer than second and third; 4th, 5th, 6th, equal; 7th to 10th successively longer; 1st primary shorter than 6th secondary even; 1st tertiary shorter than 10th secondary.
8	Jhansie ...	„	2·37	11·55	7·0	2·09	1·0 shorter ...	Brownish grey ...	1st primary 0·4 shorter than any secondary; 1st tertiary equals second secondary.
9	Etawah ...	„	2·43	11·4	7·2	2·07	0·45 shorter ...	Grey ...	1st primary equal to 1st six secondaries; latest secondary 0·05 shorter than 1st tertiary.
10	Attock ...	?	2·15	11·65	7·9	2·0	0·92 shorter ...	Pure white ...	All secondaries precisely equal, also 1st tertiary.
11	Abbottabad ..	Male	2·3	12·3	9·2	2·1	Equal to ...	Pure white ...	1st secondary a shade longer than last, and than 1st tertiary.
12	Abbottabad ...	„	2·43	12·8	8·7	2·08	Equal to ...	Pure white ...	Secondaries all equal; 1st tertiary a shade longest.
13	Abbottabad ...	„	2·4	12·8	8·3	2·22	0·1 longer ...	Greyish white ...	1st secondary much the longest; each succeeding secondary and tertiary successively shorter, so that 1st primary, though longer than longest innermost secondaries, is 0·4 shorter than 1st secondary.
14	Abbottabad ...	„	2·4	12·25	8·3	2·15	0·2 longer ...	Grey ...	Secondaries very nearly equal; latest secondary a shade the longest; 1st tertiary 0·1 shorter than latest secondary.

	Locality	Sex.	Culmen	Wing.	Tail.	Tarsus.	Relation of 1st Primary to Innermost Secondaries.	Base of Feathers of Mantle.	REMARKS.
15	Murree ...	Male	2·45	12·4	8·3	2·13	0·88 shorter ...	Nearly white ...	Earlier secondaries longer than 1st primary; each successive secondary longer; last secondary and 1st tertiary equal and longest.
	Murree ...	,,	2·9	13·0	8·0	2·15	0·6 shorter ...	Greyish white ...	1st primary equal to latest secondary; 1st and 2nd tertiaries both longer; the 1st considerably so than last secondary.
17	Murree ...	Female	2·4	11·8	7·8	2·1	0·97 shorter ...	Greyish white ...	1st primary considerably shorter than 1st secondary.
18	Posrana Cashmere ...	Male	2·47	14·0	9·8	2·2	0·85 shorter ...	Grey ...	1st primary 0·2 shorter than 1st secondary.
19	Simla ...	Female	2·15	12·45	8·5	2·0	Equal to ...	Pure white ...	All secondaries and 1st tertiary equal.
20	Simla ...	Male	2·33	13·0	9·0	2·1	0·8 shorter ...	Grey ...	1st primary shorter than 1st secondary; each secondary successively slightly longer than the proceding one; 1st tertiary 0·3 shorter than longest secondary.
21	Simla ...	Female	2·2	11·4	8·0	2·01	0·9 shorter ...	Brownish grey ...	1st primary much shorter than 1st of secondaries, which are all nearly equal.
22	Simla ...	Male	2·45	11·8	7·7	2·1	1·0 shorter ...	White, slightly grey	1st primary 0·5 shorter than 1st secondary which is 0·5 shorter than last secondary, and 1st tertiary.
23	Fagoo, 1st stage to Kuloo	,,	2·18	12·5	8·8	2·08	0·45 shorter ...	Slightly greyish white.	1st primary 0·3 longer than 1st secondary.
24	Kotegurh, 4th stage to Kuloo ...	Female	2·32	13·0	8·2	2·13	0·2 shorter ...	Nearly pure white.	1st primary 0·6 shorter than 1st secondary which is longest; each succeeding secondary and tertiary being respectively shorter than the preceding one.
25	Jeebee Kuloo ...	,,	2·33	12·45	9·2	1·99	Equal to ...	Pure white ...	1st primary one inch shorter than 1st secondary; each succeeding secondary and tertiary considerably shorter than the preceding one.
26	Jeebee Kuloo ...	,,	2·5	12·0	7·8	2·2	0·28 shorter ...	Slightly greyish white.	1st, 3rd and last three secondaries and 1st tertiary equal; middle tertiaries a shade longer.
27	Middle range of Hills N. of Mussoorie ...	?	2·21	11·5	7·7	2·07	1·0 shorter ...	Pure white ...	1st primary 0·3 shorter than 1st secondary; each succeeding secondary successively longer; 1st tertiary equal last secondary.
28	Byramghali Gangootree Valley ...	Male	2·33	13·1	9·7	2·05	0·63 shorter ...	Greyish white ...	1st secondary about 0·2 shorter than last, and 0·1 shorter than 1st tertiary.
29	Derali, Valley of the Baghirutti ...	,,	2·55	13·35	9·0	2·15	1·22 shorter ...	Greyish white ...	Latest secondary 0·3 longer than 1st secondary; 1st tertiary equal to 1st secondary.
30	Cynee Tal ...	Female	2·3	11·83	8·0	2·15	0·1 shorter ...	Pure white ...	1st primary 0·2 longer than 1st secondary.

31	Nynee Tal ...	Female	2·22	10·9	6·8	2·15	0·1 longer ...	Brownish grey ...	In one wing secondaries all equal and 1st primary longer; in the other wing innermost secondaries 0·4 longer than earlier secondaries, and 0·25 than 1st primary*; a diseased bird I suspect showing tendency to brunanism.
32	Nynee Tal ...	Male	2·25	12·45	8·8	2·05	Equal to ...	Pure white ...	1st secondary 0·78 longer than last secondary, and 1st tertiary and 1st primary which are equal.
33	Binsur Almorah ...	Female	2·15	12·4	8·2	2·1	0·5½ shorter ...	Greyish white ...	No appreciable difference in length of secondaries and 1st tertiary.
34	Kumaon Bhabhur ...	,,	2·3	12·15	8·3	2·1	1·1 shorter ...	Brownish grey ...	1st primary 0·49 shorter than the 1st secondary, which is shortest.
35	Kumaon Bhabhur ...	Male	2·6	12·4	8·8	2·21	0·8 shorter ...	Brownish grey ...	1st primary 0·4 shorter than the 1st secondary; each succeeding secondary being longer, and the 1st tertiary being 0·3 longer than the last secondary.
36	Darjeeling ...	,,	2·27	12·5	9·0	2·28	0·6 shorter ...	Pure white ...	1st primary 0·2 shorter than 1st secondary.
37	Darjeeling ...	,,	2·38	13·0	9·0	2·21	0·35 shorter ...	Greyish white ...	Earlier and later secondaries equal; middle secondaries slightly longer.
38	Native Sikim ...	?	2·52	12·25	7·5	2·2	Equal to ...	Greyish white ...	All secondaries and 1st tertiary nearly equal.
39	Sikim ...	?	2·6	12·5	8·1	2·4	0·35 shorter ...	Greyish white ...	1st primary 0·55 longer than 1st secondary.
40	Oonao, Oudh ...	Female	2·4	11·35	7·3	1·85	0·25 shorter ...	Grey ...	1st primary 0·5 longer than 1st secondary; 1st tertiary 0·2 longer than last secondary.
41	Oonao, Oudh ...	Male	2·5	12·05	7·8	2·32	0·7 shorter ...	Grey ...	1st primary 0·3 shorter than 1st secondary.
42	Oonao, Oudh ...	Female	2·2	11·8	7·7	1·95	0·3 longer ...	Grey ...	No appreciable difference in the length of the secondaries and 1st tertiary.
43	Mogul Serai (Benares) ...	,,	2·36	11·1	7·3	2·0	0·95 shorter ...	Greyish white ...	1st primary 0·4 shorter than 1st secondary.
44	Mogul Serai ...	Male	2·55	11·5	7·8	2·05	0·7 shorter ...	Grey ...	1st primary equal to 1st secondary.
45	Mogul Serai ...	,,	2·56	12·5	8·0	2·23	0·55 shorter ...	Brownish grey ...	1st primary equal to 1st secondary.
46	Mogul Serai ...	Female	2·29	11·7	7·0	2·08	0·33 shorter ...	Greyish white ...	1st primary 0·1 shorterthan 1st secondary, which is shortest.
47	Mogul Serai ...	,,	2·2	11·1	7·2	1·91	0·1 longer ... 0·1 shorter	Greyish white ...	The earliest secondaries are the longest inboth wings, but in one wing the 1st primary is longer than in the other.
48	Dinapore ...	Male	2·5	11·35	7·5	2·17	0·65 shorter ...	Brownish grey ...	1st primary 0·4 shorter than 1st secondary; last secondary and 1st tertiary equal and longest.
49	Dacca ...	?	2·25	11·3	7·0	2·24	0·25 shorter ...	Slightly greyish white.	Secondaries all equal; 1st tertiary equals 1st primary.
50	Thayetmyo ...	?	2·55	11·3	7·6	2·25	Equal to: longer...	Nearly white ...	In one wing the 1st primary equals the last secondary and the 1st secondary, but is 0·2 shorter than the middle secondary, which is longest. In the other wing the 1st primary is 0·2 longer than the 1st secondary, and each succeeding secondary is shorter than the preceding.
51	Pegu ...	?	2·43	12·7	8·8	2·32	0·35 longer ...	Dusky brown ...	The last secondary and 1st tertiary are longest; the earlier secondaries a shade shorter.

	Locality.	Sex.	Culmen.	Wings.	Tail.	Tarsus.	Relation of 1st Primary to Innermost Secondaries.	Base of Feathers of Mantle.	REMARKS.
52	Pegu ...	?	2·58	12·5	8·0	2·25	0·6 shorter ...	Pure white ...	1st primary equal to 1st secondary, which is shortest.
53	Pahpoon, N. Tenasserim	Female	2·3	11 0	7·0	2·27	Equal to ...	Greyish white ...	1st secondaries about 0·2 shorter than later and longest.
54	Pahpoon ...	,,	2 43	12·15	7·7	2·15	Equal to ...	White, slightly grey	1st secondaries 0·4 shorter than 1st tertiary, which is longest.
55	Moulmein ...	,,	2·5	11·7	7·4	2·29	0·8 shorter ...	Nearly pure white	1st primary 0·15 shorter than 1st secondary, which is shortest.
56	Moulmein ..	Male	2·6	11·7	8·0	2·4	0·9 shorter ... 0·55 shorter	Pure white ...	Primary of one wing decidedly longer than the other, but both of them longer than the 1st secondary.
57	Moulmein ...	,,	2·6	12·9	8 3	2·4	0·25 shorter ...	Pure white ...	1st primary 0·65 longer than 1st secondary.
58	Moulmein ...	,,	2 67	12·0	8·0	2·3	0 75 shorter ...	Greyish white ...	1st tertiary 0·1 longer than last secondary; 1st secondary 0·75 shorter than 1st tertiary, and equals 1st primary.
59	Meeta Myo, Tavoy ...	Female	2·46	12·5	7·7	2·27	0·75 longer ...	Pure white ...	1st secondary 0·1 longer than hindmost one; tertiaries again rapidly decreasing.
60	Shymootee, Tavoy ...	Male	2·5	12·8	8·5	2·4	0·4 shorter ...	Brownish grey ...	1st primary 0·3 longer than 1st primary.
61	Pakchan Estuary ...	,,	2·67	13·5	8·6	2·4	0·7 shorter ...	Greyish white ...	1st tertiary is 0 2 longer than the last secondary and 1·3 longer than the 1st secondary; 1st primary is 0·6 longer than the 1st secondary.
62	Pakchan ...	,,	2·5	12·7	8·8	2·2	0·4 longer ...	Pure white ...	The secondaries are all about equal; the 1st tertiary 0·3 shorter.
63	Port Blair, Andamans...	Female	2·45	11·7	7·2	2·25	0·5 shorter ...	Pure white ...	The 1st primary is 0·2 longer than the 1st secondary.
64	Port Blair ...	Male	2·42	12·0	7·7	2·07	0·6 shorter ...	White ...	The last two secondaries equal and longest 0 2 longer than the 1st tertiary, and 0 7 longer, than the 1st secondary.
65	Ross Is., Andamans ...	Female	2·5	12·1	8·0	2·39	1·4 shorter ...	White ...	1st primary 0·55 shorter than 1st secondary and 0·1 shorter than 2nd tertiary.
66	Viper Is., Andamans ...	,,	2 5	11·5	6 8	2·2	1·1 shorter ...	Pure white ...	1st primary is 0·45 shorter than 1st secondary, and equal to 2nd tertiary.
67	Aberdeen, Andamans ...	,,	2·4	11·3	7·0	2·17	0·8 shorter ...	Greyish white ...	1st primary 0·3 shorter than the 1st secondary.
68	Chatam Is., Andamans	Male	2·85	12·15	8 7	2·35	0·5 shorter ...	White ...	Secondaries nearly all equal; 1st secondary 0·3 longer than 1st primary.
69	Mt. Harriet, Andamans	Female	2·43	12·05	7·7	2·2	Equal to ...	White ...	1st secondary 0·53 shorter than 1st primary, and last secondary which is longest; 1st tertiary 0·1 shorter.
70	Little Button Is. ...	Male	2·8	12 9	9·0	2·35	Equal to ...	Pure white ...	1st primary 0·7 longer than 1st secondary.

All these specimens are adult and fine ones, except No. 31, which exhibits a tendency to bruninism. I have excluded numbers of specimens, of which the wings were more or less imperfect, the quills not fully developed, &c.

I have made all the measurements myself with the greatest care, and I regret to say, looking to the extremely unsatisfactory character of the results obtained, have wasted an entire day over the work.

One word as to my measurements. I measure the tarsi in front from the nick of the joint; possibly Mr. Sharpe measures behind, as my tarsal measurements all seem to run smaller than his.

When Mr. Sharpe talks of innermost secondaries I understand him to mean the latest secondary or earliest tertiary, whichever is longest. In these Crows' wings I reckon only the three last large feathers as tertiaries—the second and third tertiaries being each usually from 0·75 to 1·0 shorter than the preceding one. By the first secondary I mean the one next the last primary, and by the latest secondary I mean the one next the first tertiary.

I entered on this laborious review perfectly unbiassed, determined to give my friend Mr. Sharpe's views the weight that they deserve, and if possible to demonstrate their correctness; but the conclusion to which this troublesome investigation has led me is utterly adverse to his contention.

In the first place, whatever it may be in the live bird (and Mr. Sharpe was not dealing with these,) the relative proportions of the first primary to the secondaries in *specimens* appears to me an utterly worthless character; it is not only in males and females shot at the same time that they do not agree, but even at times they differ in the two wings of the same bird—sometimes the first secondary is longest, sometimes the last, sometimes the middle one. Again, sometimes, the first tertiary is the longer, sometimes the last secondary.

Under these circumstances it appears to me that nothing remains to separate *culmenatus* from *macrorhynchus* and *levaillanti* but difference of size, and this is so extremely variable that I for one cannot see my way to any specific separation on this basis. No doubt the bills of the Andaman birds run a great deal larger than those from Simla, and so do those of the birds from Pegu and Tenasserim though to a less degree, but one has only to study carefully the table above given to see how utterly useless this difference in size is as a specific character.

There remains for the separation of *macrorhyncha* and *levaillanti*, the difference alluded to by Mr. Sharpe, namely the

color of the bases of the feathers of the mantle. This appears to me also to be an unreliable character where this particular Crow is concerned. No doubt white bases to the mantle of the feathers greatly predominate in the Andaman birds, are common in Tenasserim specimens, and more rare in Indian birds; but again, one has only to look at the above table to see that this character cannot be of specific value. Moreover, I chanced to discover that this character is not always constant in the same bird, and I came across specimens in which the bases of the feathers of the mantle were one color, and those of the rump, or the breast of another, say white in one place, greyish-white in another, or grey in one, brownish-grey in another.

In my table I have invariably recorded the color of the bases of the feathers of the interscapulary region. In my opinion every one of the specimens entered in my table belong to one and the same species; and, though I have not had the opportunity of examining specimens from the Malay Peninsula and the Archipelago, still, as Mr. Sharpe explains that the only tangible difference between *levaillanti* and *macrorhyncha* consists in the color of the bases of the feathers—a character which I have found unreliable in this group of races,—I adopt Wagler's as the oldest name for our Indian and Burmese birds.

With reference to this color of the bases of the feathers I see that Mr. Sharpe by this diagnoses *validissima* and *philippina*, but certainly in some few of our Indian birds the bases of the feathers are as absolutely pure white as anything can possibly be.

Again, I see that he divides the sub-group containing *macrorhyncha* from *enca* and its allies, on the plumage of the former having always some shade of green in it; but while I quite admit that *macrorhyncha* (*apud nos*) generally shows in certain lights a certain greenish tinge on the outer webs of the earlier primaries and their coverts, still we have freshly-moulted specimens, which are all purple, and in which I can discover no shade of green. The green shade, I believe, only comes after the feathers have been for some time exposed to light and other atmospheric influences. In moulting birds the green tinge of the old feathers contrasts strongly with the rich violet purple of the new ones.

It is rather presumptuous on my part to say so; but I really think that Mr. Sharpe would have done better to unite the whole of his genus *Corone* with *Corvus*.

Recurring to our Indian and Burmese birds I notice that there is an extraordinary amount of variation in the extent to which the tails of these are rounded or graduated. For instance, in one Ootacamnud bird, there is only a difference of 0·5 between the longest and shortest tail feathers; in another the

difference is 1·3; in another 1·5. In one Attock specimen (the feathers are fully developed) it is 2·4; in another 1·0 only. In one Murree bird it is 0·6; in another 1·8. In one Andaman bird it is 0·5; in another 1·6. In one Tenasserim bird it is 1·0; in another 2·0. These are all perfect tails of adults in full plumage, and this shows of how little diagnostic value the extent of the graduation of the tails (a character which has been a good deal insisted on with regard to these Crows) really is.

Some specimens show a very decided grey shade upon the nape and upper back; others from the very same localities killed at about the same time show no trace of this.

Some specimens have the whole breast and abdomen distinctly greyish and with very little gloss; others have these parts almost pure black with a purplish gloss.

I think this character is more noticeable, or perhaps, I should say, more common amongst the birds from Attock, Abbottabad and Murree, but still it occurs elsewhere, and is certainly of no specific value.

A. O. H.

Ornithological Notes.*

By W. E. Brooks, C.E., &c.

There are a few birds, included in Jerdon's *Birds of India*, which do not appear to me to be good species, and I draw attention to them, hoping that ornithologists, more favourably situated than I am for observation of them in life, may direct their attention specially to these birds, and give us all the information they can about them.

It is generally believed that a small sylvine bird matures the first spring after it was hatched. Redstarts, Robins, and Flycatchers have a spotted plumage when they leave the nest. This is moulted the first autumn, and they then put on a plumage like that of the adult bird. Now, the male of *Ianthia rufilata* is a dark blue bird, with rufous flanks and white lower surface; the female is pale olive brown, with a trace of blue on the shoulder, a greyish blue supercilium, and the tail is dull blue. Now, I don't know how many pairs that I observed breeding in the Himalayas had males exactly resembling the females; and it is the exception, not the rule, to meet with a blue male. Have we two species closely affined, the females of

* I have not been able to verify some of Mr. Brooks conclusions about some of the Flycatchers he refers to. In fact my specimens lead me to rather different results.—Ed., S. F.

which are inseparable; or, does this bird, unlike the generality of small birds, take more than a year to mature? If the nestling has a spotted plumage,—and I expect it has—a moulting bird passing direct from the spotted to the blue stage would settle the question and show that we have two distinct species. Or, if the young of a blue male could be taken from the nest, and passed through the autumn moult in confinement, and they all passed to the female plumage, the present position that there is but one species would be established.

Dr. Jerdon was doubtful about *Cyornis ruficauda* being a good species, and he suspected the male to be blue.

I have seen much of this species, being directed always to it by the full pretty song, and I never saw such a thing as a blue male. The sexes are alike in coloration as in the case of the Nightingale or Garden Warbler.

Alseonax latirostris, No. 297 of *Jerdon*.

Should, I think, be struck off the Indian list. We have only one *Alseonax* in India that I have seen, *viz.*, *Alseonax terricolor*, Hodgson. The rufous margins to coverts and tertials are autumnal, and wear away by summer time, when the bird is much faded and more ashy. This species migrates far south, even to the islands of the Indian Ocean, and, of course, will be found in Southern India. I have only obtained it in the North-West Provinces and at Dinapore on its southern migration.

What bird *Alseonax latirostris*, Raffles, really is, is an unsettled question. Mr. Hume thinks that *A. terricolor* is Raffles's bird on account of being found in the country from which *latirostris* was described; but has the absence of its close ally, *A. cinereoalba*, T. & S., been proved? The latter has been united with *latirostris* by some. It is the Chinese representative of our *terricolor*. The two birds are so much alike* that nothing but a most careful examination of the type, if in existence *and in good condition*, would settle the question. For the present the best plan is to avoid the use of Raffles's term till further light be obtained.

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* These two *Alseonax* differ as follows:—

1. There is far more black on the lower mandible of *cinereoalba*, and the bill altogether is much darker.
2. It is of *slightly* different shape.
3. The tail is shorter.
4. The color of upper plumage is constantly different, ash grey in *cinereoalba*, and pale brown in *terricolor*.

They are two closely affined birds, and the differences *are* slight, but nevertheless they are of value. I have the same insuperable difficulty in uniting the two birds that I should have in uniting *Aquila vindhiana* and *A. albicans*. Mr. Swinhoe and I compared the two together, and he agreed with me that they were quite distinct.—W. E. B.

I now come to the first spurious species.

Siphia tricolor, *Hodgson.*

This is the young male and the female plumage of *Siphia leucomelanura*, Hodgson.

Like *Ianthia rufilata*, the bird breeds in the brown as well as in the blue dress. I have shot both brown and blue males from the nest, and have dissected many not shot at the nest, and more brown males are met with than blue ones. As is the case with many other species, eastern examples, from Sikhim for instance, retain their brown colour better, and are much less faded than examples from the dry North-West. This difference of tone is also especially observable in *Reguloides* from the two districts.

Experiments, with nestlings of this species, would be valuable; for here again there may be two close allies.

My own firm conviction, however, is that we have but one species, and that we should strike out *Siphia tricolor* from the Indian list. Mr. Mandelli came to this conclusion before I did, and directed my attention to it. The result of his observations was that *Siphia tricolor* was not a species.

Erythrosterna leucura, in Jerdon's list should be *Erythrosterna albicilla*, Pallas. *E. leucura*, Gm., is South African.

It is, I believe, generally well known now that we have both *E. parva* and *E. hyperythra* in India. The former is the common bird of the North West, a few being found as far east as Dinapore. East of Benares, *albicilla* is the prevailing bird. *E. hyperythra* appears to be a resident hill species.

Erythrosterna pusilla, *Blyth.*

This should be struck out of the Indian list, most decidedly. It is the female (and young male probably) of *E. maculata*, Tickell. This plumage changes much from the autumn to the spring, the rufous portions wearing away, and becoming ashy brown. Dr. Jerdon says: "In summer the male assumes a bright ferruginous colour on the chin and throat." This is a mistake, as in the case of *Siphia tricolor;* the identification is due to my friend Mr. Mandelli, who took great pains with the question, and sent me a good series killed at different times.

Erythrosterna acornaus, *Hodgson.*

A most mysterious bird, but, I think, it ought to be removed from the Indian list. It is evidently a female *Muscicapula*, perhaps *æstigma*, but I am not certain. Only the examination of the type would decide the matter. At all events in my Hima-

lavan wanderings I have not been able to come across a *Muscicapula* with both sexes alike, the only birds that come any way near Hodgson's drawing are females of *Muscicapula*.

No. 591 of Jerdon was intended to describe *Motacilla personata*, Gould., and is not the true *M. dukhunensis*, Sykes. I carefully examined the type of the latter in the Kensington Museum, and it is the bird so like *M. alba* with the white surrounding the eye *in communication with that of the lower surface*. It is of purer grey on the back than *M. alba*, and there is more white on the greater wing-coverts.

The large resident species, *M. madaraspatana*, is well known. It occurs also in the hills, and I obtained it in Cashmere.

Mot. personata, *Gould.*

Is a cold-weather visitant, and is grey on the back at all times. The white eye-patch is entirely bounded by black. Change the grey back to a black one, and it becomes the resident hill species, *M. Hodgsoni*, Grey, which does not come to the plains. Our fifth and last Indian *Motacilla* is *M. luzoniensis*, with much white on the face; always a white throat, and the back jet black in summer, and more or less black in adults in winter. It comes plentifully to the plains, but its western limit appears to be somewhere about Buxar. I never got one near Benares, while it is plentiful at Dinapore. In immature birds the greater amount of white on the greater wing-coverts distinguishes it. The face white of *luzoniensis* communicates down the side of the neck as in *dukhunensis*, with the white of the lower surface.

I have found both *M. dhukunensis* and *M. personata* generally distributed over the North-West, and have obtained them as far east as Assensole near Raneegunge. I have not observed how much further east and south they are found.

I notice in the last part of STRAY FEATHERS that the Editor has revised my paper on the Indian Creepers (*Certhinæ*); and in the alterations I entirely concur.

Remarks on the Genus Micropternus, *Blyth.*

IN my revised list of the birds of Tenasserim, (now in type, and to appear, D. V., in the next number) I have entered all the *Micropterni* from Mergui, and the more southern portions of the province as *M. brachyurus*, Vieill., but it must not be supposed that I, therefore, consider them quite identical with specimens from Java, Sumatra, and the southern portions of

the Malay Peninsular. All I mean to indicate is, that they belong to the *brachyurus*, and not to the *phaioceps*, type.

Typical specimens of these two species are different enough, but they seem to run a great deal into each other; and it may be as well to explain what I understand to be the differences between typical specimens.

Typical *brachyurus* I take to be smaller; wing, say about 4·5; bill not exceeding 1·0; the head brownish, chestnut or reddish or earthy brown, not distinctly infuscated; the feathers often more or less paler margined; the feathers of the chin and entire throat much darker than the breast and margined paler; the barrings of the upper surface, and especially of the tail, and of the lower surface generally when adults are compared, much more strongly marked than in *phaioceps*.

In *phaioceps* the head is more of a greyish or smoky brown, more or less distinctly infuscated; the pale margined feathers of the chin and throat are much the same color as the breast; the tail bars are much narrower, and in most old birds the entire under surface is immaculate; the wing in *phaioceps* is usually, except in the Assam and Eastern Bengal race, over 4·75, and the bill over 1·1.

There is, however, an extraordinary amount of variation in the several races united under these names, and more especially under the latter. One of these races of *phaioceps* I formerly distinguished as *burmanica*, and there are several other races equally distinguishable, but none of them, according to my present views, deserving of specific separation.

I will first compare a number of specimens of what I call typical *brachyurus* (as they are identical with the only Javan specimen I have been able to examine) from the south of the Malay Peninsular, with a number of specimens from Mergui and Tenasserim south of this, to show how far they differ.

Locality.	*Sex.*	*Date.*	*Wing.*	*Bill to Forehead.*	
Singapore Isd	*male*	4-8-75	4·5	1·0	L in flesh, 8·75. Head brown; feathers narrowly margined pale rufus; nape nearly immaculate; back, bars disappearing; rump and upper tail coverts curved bars thick; dark tippings of tail feathers, 0·5; five tail bars, 0·15 broad; large red patch under eye from anterior to posterior angle; chin and throat, laterally up to red patch deep brown; feathers narrowly margined pale yellowish rufous; upper breast immaculate; rest of lower parts curved bars thickly set; first or spurious quill with four rufus bars.

Locality.	*Sex.*	*Date.*	*Wing.*	*Bill to Forehead.*	
Pulo Seban	... *fem.*	13 12 75	4·42	1·0	L in flesh, 8·3. Head pale brownish rufous, margined paler; nape nearly immaculate; rest of upper parts closely barred with nearly straight bars; dark tips to tail 0·3 long; five dark transverse bars; whole chin and throat deep brown, broadly margined with pale yellowish; entire breast immaculate; rest of lower parts with close curved bars.
Penang	... „	·74	4·3	0·99	Head nearly uniform brownish rufous; a portion of nape unbarred; rest of upper surface closely set with imperfect straight bars; chin and throat dull rufous brown; feathers with very narrow pale fulvous edgings; dark tippings of tail 0·6; five broad transverse bars; breast immaculate; rest of lower parts obscurely marked with traces of curved bars.
Malacca	... „	„	4·3	1·0	Head as in No. 1. *Entire* upper surface broadly and strongly marked with straight bars; black tippings to tail 0·35; five bars about 1·12 broad; chin and throat as in No. 2; breast and abdomen immaculate; flanks and lower tail coverts closely barred.
Malacca	... *male*	„	4·4	0·99	Head pale brown; feathers narrowly margined with pale rufous; occipital crest immaculate; entire upper surface closely banded; chin and throat and rest of lower parts as in preceding.
Malacca	.. „	„	4·32	1·02	Entire head and crest very pale earthy brown, here and there rather darker brown centres of feathers visible; entire upper parts very closely banded; chin and throat brown, not so dark as in any of the preceding feathers, very narrowly margined with yellowish white, and with shaft stripes of the same color; entire under surface immaculate.
Malacca	... *fem.*	„	5·52	0·92	Head as in preceding, but slightly browner, barring on interscapulary region nearly obsolete; rest of upper surface very broadly barred; chin and throat deep brown, with extremely narrow pale rufescent margins and shaft stripes; breast and upper abdomen immaculate; lower abdomen obscurely, flanks and lower tail coverts strongly barred.

Locality.	*Sex.*	*Date.*	*Wing.*	*Bill from Forehead.*	
Malacca ...	*male*	'74	4·25	0·99	Head dull earth brown, only tips of crest feathers rufescent; interscapulary region immaculate; rest of upper surface barred; chin and throat sooty black, with traces of whitish margins to the feathers; lower surface immaculate; traces of bars on lower tail coverts and flank.
Bankasoon ..	„	15-4-77	4·4	1·08	Head and upper parts like first Singapore male; lower parts like No. 4 Malacca *female*, but dark tips 0·3, tail with six 0·08 bands.
Bankasoon ...	„	7-6-77	4·07	1·06	Head nearly uniform with back, but, of course, unbarred without any perceptible paler margin or infuscation; chin and throat unicolorous with the breast, with narrow yellowish margins to the feathers; lower parts nearly immaculate, but with barrings on flanks and lower tail coverts; tail bars 5·01 in width.
Bankasoon ...	„	8-6-77	4·7	1·1	Head precisely as in No. 1; tail tippings 0·5 five 0·1 bands; chin, throat, and entire lower parts precisely as in No. 2 from Pulo Seban, but throat a trifle duller.
Bankasoon ...	„	15-6-77	4·73	1·15	Upper parts precisely as in second Bankasoon *male*; tail tippings 0·4; six tail bands about 0·9 wide; lower parts almost precisely as in No. 2.
Bankasoon ...	*fem.*	14-6-77	4·42	1·02	Identical with Penang *female*, except the barrings on upper back are rather closer and tail bands rather narrower.
Bankasoon ...	„	8-6-77	4·6	1·14	Head as in first *Singapore male*; upper surface more closely barred, tail tippings 0·4; five 0·1 bands; chin and throat dull brown, with extremely narrow, almost obsolete, dingy fulvous margins, as in Penang females. Rest of lower parts as in first Singapore .
Bankasoon ...	„	24-4-77	4·62	1·13	Head nearly uniform as in Penang *female*; general tint very deep chestnut; whole upper parts, except back of neck, strongly banded with straight bars; tail tippings 0·3; only four imperfect about 0·12 bands; chin and throat chocolate brown with conspicuous, though narrow, bright fulvous

Locality.	*Sex. fem.*	*Date.*	*Wing.*	*Bill from Forehead.*	
					margins to the feathers; upper breast imperfectly barred; rest of breast and lower parts very closely barred with nearly straight bars. First or bastard primary with three rufous bands. Note, that in preceding specimens some have the first or bastard primary dusky, with 4 or 3 rufous bands; in one there is only 2; in others this primary may be said to be rufous, tipped dusky, and with 2 or 3 dusky bands. This primary varies much both in width and length.
Malawoon	... *male*	11-4-77	4·71	1·15	Head perfectly uniform rufous brown, no infuscation, and scarcely a trace of any paling at the margins of the feathers; nape and entire upper parts closely barred with straight bars; tail tippings 0·4, six transverse 0·15 bars; large red patch under the eye, as in all previous males as described in first Singapore *male*. [illegible] no specimen any red abo[illegible] the eye in the half circ[illegible] from anterior to posterior angle; feathers of chin and throat uniform with breast, with narrow yellowish white margins, and narrow dark brown lines inside these; base of the throat in front immaculate, rest of the lower parts thickly set with curved bars.
Malawoon	... „	11-4-77	4·52	0·99	Crown deep brown; the feathers obscurely margined with a paler and more rufous brown; occiput, nape, and entire upper parts closely set with straight transverse dusky bars; tail tippings 0·6; five transverse 0·12 bars; chin and throat deep brown with narrow pale rufescent margins to feathers; lower parts as in preceding, but duskier.
Pakchan	... „	27-1-75	4·75	1·1	Entire bird precisely like first Singapore *male*, except that it is larger, has a greater amount of barring on the upper back, and that the tail bars are narrower.
Pakchan	... *fem.*	24-1-75	4·6	1·05	Head as in Penang *female*; nape and entire upper parts so closely set with straight transverse bars that but little chestnut remains visible; chin and throat as in first Singapore *male*; breast immaculate; rest of

Locality.	*Sex.*	*Date.*	*Wing.*	*Bill from Forehead.*	
					lower parts very closely set with broad nearly straight transverse bands; tail tippings 0·55; five 0·13 transverse bands.
Mergui	... *fem.*	2-12-74	4·6	1·1	Head and nape as in first Singapore *male*; upper parts rather more strongly barred; tail tippings 0·4; five 0·1 transverse bands; feathers of chin and throat brown, and not quite so dark as in first Singapore *male*, with comparatively broad fulvous margins; lower parts almost immaculate, with transverse bars, however on the flanks, vent, and lower tail coverts.

I consider that all these Southern Tenasserim birds may be accepted as *brachyurus*. They run a good deal larger than my Malayan specimens, and the banding on the tail is, as a rule, much narrower, but they have the chestnut brown, not the grey brown, or smoky brown head. The adults, for the most part, retain a great deal of barring about the lower surface, and the central portions of the throat feathers are a very dark brown, and not nearly concolorous with the breast.

At first sight this larger race of *brachyurus* is very close to *gularis*, of which the wings run 4·72; 4·85; 4·75; 4·68; 4·7; 4·71; 4·6; 4·78; 4·85; 4·8; 4·7, measuring specimens at random from various parts of the Nilghiris, Ceylon, and Travancore. But *gularis* has the head more or less infuscated, like *phaioceps*, the bands on the tail *very* narrow, and usually six in number, against five, as a rule (for it varies) in *brachyurus* and *phaioceps*, and the whole lower surface in the great majority of the adults unbarred. Besides this, while it agrees with *brachyurus* in the dark centres to the throat feathers, the breadth of the stripe of these dark-centered feathers is *much* less in *gularis* than in *badius*, and this point alone suffices to separate it.

To return, we have not explored the country thoroughly between Tavoy and Mergui, and do not know exactly at what point the two forms meet, or whether they at all intermingle; but at Tavoy and everywhere northward of this we meet with nothing but specimens of the *phaioceps*' general type.

If we trace the species up from Tavoy northwards to the head of the Assam Valley on the one hand, and to Dehra Dhoon on the other, we shall observe very great local variations in dimensions, which are, to a great extent, coupled with corresponding variations in general tone and character of plumage.

I have measured between 60 and 70 specimens taken at random from various localities, and subjoin the dimensions of wings and bills, the latter measured from the forehead to the point :—

			W.	B.		W.	B.
Tavoy ?	...	♂	4·9	1·06	♀	4·7	1·03
		„	4·9	1·11	„	4·9	1·13
		„	5·15	1·03	„	4·9	1·0
Meeta Myo	...	„	5·0	1·2	„	4·9	1·2
		„	4·85	1·13	„	4·7	1·2
					„	4·7	1·06
Amherst	...	„	4·8	1·18	„	5·35	1·3
		„	5·0	1·24	„	5·0	1·25
		„	4·85	1·26	„	4·7	1·03
					„	5·0	1·2
					„	5·1	1·17
					„	5·15	1·12
Karope	...	„	5·1	1·23			
Moulmein	...	„	4·9	1·12	„	5·15	1·23
Wimpong	...	„	...	...	„	5·1	1·16
					„	4·9	1·15
Thatone	...	„	...	...	„	5·09	1·12
Beeling	...	„	...	...	„	4·8	1·07
Kogo	...	„	5·09	1·17			
Kankaryit	...	„	5·1	1·17	„	5·02	1·23
Myawadee	...	„	5·1	1·12	„	5·02	1·26
Paphoon	...	„	5·1	1·12	„	5·05	1·12
Rangoon	...	„	...	...	„	4·81	1·12
E. Pegu Hills	...	„	4·9	1·12	„	4·8	1·12
Thayetmyo	...	„	5·15	1·27			
Tipperah	...	„	...	...	„	4·51	1·1
Dacca	...	„	5·0	1·0	„	4·6	0·98
Ditto	...	„	4·6	1·1	„	4·5	1·0
Suddya	...	„	4·6	1·13	„	4·6	1·03
Ditto	...	„	4·55	1·05			
Sikim	...	„	4·9	1·12	„	4·95	1·1
Ditto	...	„	4·82	1·11	„	4·8	1·07
Ditto	...	„	5·0	1·12	„	4·9	1·15
Ditto	...	„	4·91	1·1	„	4·8	1·1
Ditto	...	„	4·8	1·1			
		„	4·91	1·11			
Tirhoot	...	„	...	...	„	4·9	1·12
Kumaon Bhabur	...	„	5·2	1·12			
N. Rohilkund	...	„	...	...	„	5·3	1·2
East Dhoon	...	„	5·3	1·15			
Dehra	...	„	5·1	1·3			
		„	4·4	1·32			

The Tavoy birds are characterized by a dusty rufous brown head, very different from the infuscated head of the Lower Bengal, Assam, and Sikhim birds, and by the total absence of markings on the lower surface of every adult. The Amherst birds, and in fact all those in the list from Amherst to Pahpoon, are brighter colored birds than any of the preceding, with the head more like that of *brachyurus*, and with much more markings on the lower surface than in what I consider typical *phaioceps*.

It will be noticed that the Tipperah, Dacca, and Assam birds again run very small, almost as small as *brachyurus*; they are dingy colored birds with very strongly infuscated heads.

The Sikhim birds are similar but much larger than the plains' birds, and when you go towards the extreme western limits of the species in the Kumaon Bhabur, Northern Rohilkund, the Dhoon, &c., you come upon a huge race almost more distinct from *phaioceps* than the latter is from *brachyurus*.

It is characterized not only by its size, but by the almost entire absence of infuscation on the head, and by the fact that the adults are not only absolutely immaculate *below*, but also lose all markings on the upper surface, on the back, scapulars, and rump, which, coupled with the bright chestnut of their plumage, gives them a very different appearance from all the other races of *phaioceps*.

There are, in fact, six recognizable races: the Tavoy or Southern Tenasserim, the Central and Northern Tenasserim, the Northern Pegu (described by me under the name of *burmanicus* (Pr. A. S. B., 1872, 71), the Lower Bengal and Assam, the Sikhim and Bhotan, the Dhoon, Kumaon Bhabur, and Northern Rohilcund race, and it is not impossible that some ornithologists may, hereafter, separate all these as species or subspecies.

Sundevall (Consp. Av. Pic., 88.) admits seven species of this genus, *viz.* :—

Phaioceps, *Bly*; gularis, *Jerd.*, brachyurus, *Vieill.* (from Java); squamigularis, *Sund.* (Malacca); badius, *Raffl.*; badiosus, *Tem.* (Borneo); and fokiensis, *Swinh.* (Fokien, China) to which has to be added Holroydi, *Swinh.*

Of these, *squamigularis*, Sund., is unquestionably the true *badius*. Malaccan, Singapoor and Sumatran specimens are quite inseparable, and their length in the flesh *is* somewhat more than 3 inches English, at times 8¾. The *badius*, Raffles *apud* Sund., is *brachyurus*, if this be considered distinct; but to judge from the only specimen I have examined, Javan birds are not specifically separable from Sumatran and Malayan ones.

Of Bornean specimens I have seen none, but from what Count Salvadori (V. di B., 58), Mr. Swinhoe (P. Z. S., 1683, 267), and others say about the red extending as dots above as well as below the eye, I should think *badiosus* was perhaps separable. I have just carefully examined over fifty males of the *brachyurus* and *phaioceps* types, most of them superb specimens, and in not one is there the slightest trace of any red *above* the eye. The red extends up as high behind as the posterior angle of the eye, and in front as the anterior one, but in no single instance is there a single dot of red *above* these points.

The Marquis of Tweeddale says (*Ibis.*, 1877, 290) that in Bhotan specimens, *i.e.*, in *gularis*, the eye of the male may be observed to be entirely surrounded by red points or dots.

This, however, must be altogether exceptional, as in our large series, from all parts of the Neilgherries, the Malabar Coast, the Assamboo Hills, and Ceylon, not one single specimen exhibits one single speck of red above a line drawn through the two angles of the eye.

As to the Chinese species I have only seen the Foochow form, but I think that, according to Mr. Swinhoe's own showing, his two supposed species are not separable from *brachyurus* and *phaioceps* unless we agree to break our Indian and Burmese *phaioceps* up into five or six species, and similarly sub-divide Tenasserim, Malaccan, Sumatran and Javan races. As for the single Foochow specimen that I have examined I am unable to separate it from some of the Southern Tenasserim *brachyurus*.

I would reduce the number of the species of this genus to three or at most four.

Pale margined feathers of the throat.

I.—NEARLY CONCOLOROUS WITH BREAST, (head usually more or less infuscated) ... *phaioceps.*

II.—MARKEDLY DARKER THAN BREAST.

1. Stripe of pale margined throat feathers not extending laterally beyond the rami of the mandible (head usually more or less infuscated) ... ... *gularis.*
2. Stripe of pale margined throat feathers extending laterally over the rami of the mandible up towards the eye (head usually not infuscated).
   (a) Male with no red above a line drawn through angles of eye ... *brachyurus.*
   (b) Male with eye entirely surrounded with red points ... ... *badiosus.*

Dimensions and amount of markings in all these species very variable, not only according to sex and age, but also according to locality, the majority of specimens in one small tract running much smaller, in a neighbouring one much larger; the general tone of colour in one locality much brighter, in another much duller; the adults of both sexes in one place retaining almost universally much more, and in another much less, of the bandings characteristic in their fullest intensity of immaturity, and so on, but these variations being nowhere, when really large series are examined, so constant or so susceptible of exact definition as to warrant their acceptance as a basis for specific separation.

The specific synonymy would, according to my view, be somewhat as follows :—

1. M. PHAIOCEPS, Blv., J. A. S. B., XIV, 195, 551, 1845.
   rufus, apud *J. E. Gray*, Ill. Ind. Zool., I. t. 29, f. 2, 1832.
   badius, *Hodgs.*, Gr. Zool. Miscl., 1844, 85, No.
   nec. *Raffl.*

brachyurus, *Hodgs.*, Cat. B. Nepal, 117, 1844, nec. *Vieill.*
rufonotus, *et* rufinotus, *Malh.*, 1844, in Mus. MSS. *non descr.* Mon. Pic. II. 1. Pl. XLVI, f. 1, 2, 3, 1862.
blythii, *Malh.* Rev. et Mag. Zool., 1849, 534.
? holroydi, *Swinh.*, Ibis, 1870, 95, *ex-Hainan.* (*non vide*).

2. M. GULARIS, *Jerd.*, Madr. Journ. Sc. No. 31, 191; XIII. 139. *Bly.* J. A. S. B. XV, 17, 1846; Cat. Mus. A. S. B. 61, 1849.
phaiopicus, *Malh.*, Mus. Brit. MSS. 1845.
jerdonii, *Malh.*, Rev. Zool. 1849, 535; Mon. Pic. II, 3, Pl. XLVII, f. 1-4, 1862.
phaioceps, *Layard.* A. & M. N. H., XIII, 450, 1854, nec. *Bly. ex-Ceylon.*

3. M. BRACHYURUS, *Vieill.* N. Dict. XVI, 103, 1818, *ex-Java.*
badius, *Raffl.*, Tr. L. S, XIII, 289, 1821, *ex-Sumatra.*
phaeopus, *Malh.*, M. S. Mus. E. I. C. ? 1844.
hemidactylus, *Nati.* MSS.
ricordi, *Géne.* Mus. Tur.
fokiensis, *Swinh.* P. Z. S., 1863, 87, *ex-Fokien, China.*
squamigularis, *Sund.*, Consp. Av. Pic. 89, 1866, *ex-Malacca.*

4. M. RADIOSUS, Tem., Bp. Consp. Av. I. 113, 1850, *ex-Borneo* (*non-vidi*).

In conclusion I must notice that no English ornithologist, who accepts the British Association Code, has any right to supersede Blyth's name *phaioceps* for our Indian species, by Malherbes of *rufinotus*. This latter appears to have remained a museum MS. name for long after Blyth's name was published, and indeed to have never been properly defined and published until subsequent to Malherbe's other name. *Blythii* had been published (*Rev. et Mag. Zool.*, 1849, 534), so that even continental ornithologists should apparently, if they reject *phaioceps*, adopt the name *Blythii* and not *rufinotus*.

The only ground for rejecting Blyth's name is its hybridity, a valid ground to continental ornithologists, but no ground at all, as I have shown (*ante*, p. 279) to those who accept the British Code.

The only doubt that seems to me to exist as to the retention of Blyth's name consists in the fact that Mr. J. E. Gray applied the name of *rufus* to our Indian species thirteen years previous to Blyth's naming it. True, a mistake was involved in this name, but the fact remains that this name *rufus* was the first distinctive appellation bestowed upon this species, and that no other species of this genus bears this title; and I, therefore,

brachyurus, *Hodgs.*, Cat. B. Nepal, 117, 1844, nec. *Vieill.*
rufonotus, *et* rufinotus, *Malh.*, 1844, in Mus. MSS. *non descr.* Mon. Pic. II. 1. Pl. XLVI, f. 1, 2, 3, 1862.
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apprehend that in strictness we ought to retain the name *rufus* for the Indian and Burmese birds.

A. O. H.

Notes on some Birds in Mr. Mandelli's Collection from Sikkim, Bhutan, and Tibet.

By W. T. Blanford.

At Mr. Mandelli's request, I have written out a few notes on some of the birds lately procured by him. The specimens mentioned have, in all doubtful cases, been compared by Mr. Hume with skins in his own collection.

A. nisus.

A. melanoschistus.

The following are the lengths of the wings of 23 Sparrow-Hawks in Mr. Mandelli's collection. The specimens are not sexed :—

Eight smaller specimens, supposed males, with wings respectively 8·35 ; 8·35 ; 8·4 ; 8·4 ; 8·4 ; 8·65.

Seventeen larger supposed to be females ; 9·55 ; 9·55 ; 9·6 ; 9·6 ; 9·75 ; 9·75 ; 9·75 ; 9·8 ; 9·8 ; 9·8 ; 9·85 ; 10 ; 10 ; 10·05 ; 10·05 ; 10·05 ; 10·1.

Several of the birds are very dark coloured.

The question whether *A. melanoschistus* is really distinguishable from *A. nisus* appears far from solution. If the typical male of the former, with a wing 9·75 and tail 8·5, was correctly sexed (and it was determined by Captain Marshall, see Hume, Scrap Book, pp. 129, 131) there is an end to the matter, since the difference in size between the sexes would be so very much smaller in *A. melanoschistus* than in the European Sparrow-Hawk that the two must, I think, be considered distinct. But there is no point concerning birds, at least this is my experience, in which there is greater liability to error than in sexing ; and unless Mr. Hume has additional specimens of large males, correctly sexed, I should be inclined to class the original male as doubtful. It will then be seen that the above measurements, taking those of the supposed females, only go a long way towards bridging the difference between the average European Sparrow-Hawk with a wing 9·5, according to Sharpe (Cat. Ac. Brit. Mus., p. 134) and the types of *A. melanoschistus*, with wings from 10·12 to 10·5, (Scrap Book, pp. 129-130). The variation is further shown in the opposite direction by the series of females from the British Islands, measured by Sharpe and Dresser (Birds of Europe, Pt. IX). In these the wings measure 8·8 to 9·3.

Spizætus kieneri.

A young bird, apparently in changing plumage, differs from the adult in being browner and less uniform in colour above, and in almost wanting the ferruginous abdomen and the stripes on the lower plumage. In still younger birds there is probably no trace of either. The following is a description of the plumage :—

Upper parts blackish brown ; most of the feathers with slightly paler margins, and some of the buffy white basal portions of the feathers shewing about the back of the neck ; rump hair-brown, a distinct buff supercilium running back to the nape, and the forehead buff; cheeks below the eye with elongated black spots ; ear-coverts blackish brown; primaries obsoletely banded outside, distinctly within ; central rectrices blackish with scarcely distinct narrow black transverse bands ; outer tail feathers paler and transversely banded with black ; lower parts buffy white, a few lanceolate streaks on the lower neck and sides of the breast, and the shafts of the abdominal feathers black, forming very narrow lines. A little ferruginous on the belly ; thigh-coverts dull ferruginous ; flanks black behind and ferruginous in front, with broad black central streaks to the feathers ; under side of wing white. Wing, 15·25 ; tail, 8·25 ; bill from gape, 1·4. The specimen was obtained in Native Sikkim in April 1876.

Bulaca newarensis.

A nestling of this species, about half grown, has the feathers of the crown and hind-neck earthy brown, with broad fluffy dirty-white edges ; ruff deep wood brown with a purplish tinge ; cheeks behind eye pale wood brown ; loral bristles and bristly feathers around eye nearly black ; feathers of back, rump and wing-coverts light brown, banded with buffy white, and with finer white tips ; rectrices hair-brown, banded with regular narrow transverse paler bars, which are closer together and paler in colour towards the end, and the extreme tips are white ; primaries hair-brown, with paler transverse bands, those on the outer webs not corresponding to those on the inner, the bars being closer together towards the tips, which is white ; secondaries paler, and the bars closer together ; chin bristles blackish ; behind them are some earthy brown feathers with pale margins ; throat pure white, and all the remaining portion of the under parts, including the thigh covers, dirty white, with a tendency to dark bands on the flanks. Wing, 11 ; tail 6 inches.

Cuculus striatus (*C. Himalayanus*, Vigors.) **C. micropterus.**

It has been frequently pointed out that these closely-allied species may always be distinguished by the size of the bills.

This has been recently noticed again by Mr. Hume, in STRAY FEATHERS, III., p. 79. Mr. Mandelli called my attention to the circumstance that in his large series there is a perfect gradation from the smallest bill of *C. striatus* to the largest of *C. microcopterus*. On looking through the specimens I found that the two species could be distinguished with one precaution. Birds in the first plumage must be compared with those of the other species at the same age and adults with adults. *C. microcopterus* in its first season's plumage has a bill no larger than that of an adult *C. striatus*.

Cyornis rubeculoides ? *Var.*

Amongst numerous specimens of *Cyornis rubeculoides* from the Dooars of Bhotan, Mr. Mandelli has received nine specimens closely resembling the female of that species, but still constantly distinguished by several marked characters. As the specimens have not been sexed, it is impossible to say whether all are females or not. Mr. Mandelli is much disposed to consider this species new; he has never seen any passage between it and *C. rubeculoides*. Mr. Hume, however, has shewn me very similar specimens (females) from Burmah, and has assured me that the males are not specifically separable from those of *C. rubeculoides*.

In these specimens from the Bhutan Dooars, the throat is always whitish, whilst the breast is less rufous and more olivaceous than in typical *C. rubeculoides*; the abdomen is dull olivaceous, scarcely paler than the breast, and with only a little white about the middle, instead of being white throughout. The upper surface is darker; the head and hind-neck very grey and well distinguished from the back, whilst in *C. rubeculoides* the difference is trifling; the sides of the head in the Dooar birds are greyer and the lores whitish instead of olivaceous; the bill, as a rule too, is longer, but this difference is not constant.

Erythrosterna parva.

A specimen from the Bhotan Dooars, shot in January of the present year, belongs to this species. It may be at one distinguished from *E. albicilla*, (*E. leucura*, of Jerdon) of which several specimens were obtained at the same time, by its grey head and hind-neck, and by the red breast retained in winter and descending much lower than in *E. albicilla*. This is probably the most eastern locality yet recorded for the European *E. parva*.

Merula kessleri. *Przevalski*, Birds of Mongolia. Rowley's Ornith., Misc., Pt. VI, p. 199.,pl. LIV, 11.

A female Blackbird, obtained by Mr. Mandelli from Tibet, where, according to the label, it was shot in November, appears

to belong to the above species. Mr. Davison, who had been looking at *Przevalski's* figures, recognized the species ; it is a peculiar rather dull-coloured form, with a ferruginous abdomen. The following is a description :—

Upper parts of head and hind-neck brownish black ; the feathers with brown edges ; sides of head, including lores, dull brown, passing down into dingy white ; ear-coverts dark brown with whitish mesial streaks ; upper part of back greyish earthy brown, divided by a distinct line from the darker neck ; rump rather paler and tinged with ferruginous ; scapulars blackish with the broad margins of greyish brown, tinged with rufous ; quills and wing-coverts brownish black, but secondaries (tertiaries) dark brown ; the margins of the secondaries earthy grey, those of the coverts brown ; tail feathers blackish, central pair browner ; chin dirty white, passing into pale brown on the throat ; all the feathers, including those on both sides below the ear-coverts, with blackish spots near the tips ; breast earthy brown with a ferruginous wash ; abdomen similar at first, but paler, divided by a distinct line from the breast, and becoming distinctly ferruginous behind ; bill and legs in the dried skin brown. Wing, 5·7 ;* tail 4·3 ; tarsus, 1·45 ; culmen, 1·1 ; bill from nostril, 0·55.

In the male, represented on Mr. Rowley's plate (a very poor figure, evidently copied from a bad drawing), the bill is yellow as in the other Blackbirds ; the head, neck, and breast, much blacker than in the female, and the pale earthy grey back and anterior abdomen form a pale ring round the body, the lower abdomen being deep ferruginous.

Carpodacus rubicilla.

A specimen of a female obtained from Tibet, north of Sikkim, in December 1876, adds considerably to the known range of this species.

Sterna tibetana, *Saunders*. P. Z. S. 1876, p. 649.

One specimen, killed July 1875, in the region of Tibet immediately north of Sikkim, agrees perfectly with the description given by Mr. Howard Saunders, being darker in colour both above and below than *S. fluviatilis*, (*S. hirundo* of Temminck and of Jerdon's Birds of India, but not of Linnaeus,) with a distinct vinous tint on the breast and abdomen and rather

* The tail is measured as usual from the insertion of the central tail feathers; the culmen is from the rise of the skull to the tip of bill. In *merula* and many other birds in which the bare culmen runs back between the feathers, no good measurement of the bill from the forehead can be made.

smaller bill and feet. The following description may serve to identify the species should it be found within Indian limits.

Whole head above and nape black; lores, sides of head, below the eye and the hind-neck immediately behind the black nape white, the last passing at once into the ashy grey of the whole mantle; primary quills with white shafts, except near the tip; first primary with the outer web black, inner web dusky near the shaft with a broad white inner margin; the tip of both webs dusky; the second quill has the outer web ashy grey, the inner web dusky near the shafts, white on the inner margin, except towards the blackish tip, from which a dusky band runs up the inner edge of the feather; the third, fourth, and fifth quills the same, except that margin runs up both edges; remainder of the quills the same colour as the mantle; the secondaries having a narrow terminal white border; rump and tail white; the outer webs of all rectrices, except the central pair, grey, being darkest on the outermost pair; chin and throat white; breast and abdomen pale grey, with a distinct pinkish hue; wing-lining and under tail-coverts white; bill red; the tip of both mandibles dusky; legs red; claws dark coloured. Wing, 11·5; tail, 5·8, deeply forked; the outer rectrices exceeding the central pair by 2·6; tarsus 0·77; culmen 1·65; bill from front, 1·25.

Podiceps albescens, *Mandelli. Sp. Nov.*

Mr. Mandelli has had, for some years in his collection, a little Grebe, shot on one of the lakes in Native Sikkim. The skin has hitherto been looked upon as that of an *albino* of *P. minor*, but Mr. Mandelli tells me that he has for a long time greatly doubted the identification; and after examining and comparing the skin, I am of opinion that it is not an *albino*, and I am convinced that it cannot be *P. minor*. The plumage of the body is chiefly white, but there are brown central streaks to the feathers of the back and to the secondary quills, and these marks are perfectly regular, not in patches; the bill and legs are as dark as in *P. minor*, and the feathers of the posterior abdomen, although silky white at the tips, are grey at the base; the primaries are all greyish brown; the forehead and chin dusky black, and the throat and hind head all round ferruginous. Now, all these characters taken together are decidedly adverse to the idea that the skin is that of an *albino*; and the man who shot the bird declared that there were a pair of them similarly coloured. Of course but little dependence can be placed upon this, though it is favourable to the probabilities of the bird being a pale coloured species. The distinction from *P. minor* is shewn by the ferruginous coloration encircling the hinder part of the head completely: in the little Grebe, in full breeding plu-

mage, the nape appears always to be dusky, and the ferruginous colouration not to extend across behind the head; the dimensions of *P. albescens* and *P. minor* appear identical. The following is an account of the supposed new species:—

Description.—Forehead, sides of the head as far back as the hinder part of eyes and chin blackish brown; lores and base of the lower mandible beneath the lores naked, and doubtless brightly coloured in the living bird; the whole hinder head, nape and throat, forming a complete ring, rich chestnut, a little paler below; hinder part of neck pale brown; the feathers tipped white; sides of neck white; back white; the feathers with narrow central earthy brown stripes, extending throughout the feather; these stripes disappear on the rump, but are well marked on the scapulars, a few of the latter being almost entirely earthy brown except at the tip; primary quills earthy brown with narrow white tips; secondaries white, with dark central stripes; wing-coverts white, some of the larger with faint mesial stripes; whole under-parts from the throat pure silky white; bill in dried skin blackish; tips of both mandibles whitish; legs brown (probably olive when fresh). Wing, 3·75; tarsus, 1·3; mid toe, 1·8 culmen, 0·96; bill from front, 0·84.

Nobeltics?

Arachnothera simillima, *Sp. Nov.*

Extremely like A flavigaster, *Eyton, but smaller, somewhat yellower above and below, with a much smaller bill and distinguished at once by the rami of the lower mandible not meeting to form the angle of the gonys till within* 0·6 *of the point.*

Having only a single native skin of this species I should have hesitated to describe it were it not for the marked structural difference alluded to at the close of the diagnosis.

In *flavigaster* and most of the *Arachnotheras* (including with these *Arachnoraphis*) with which I am acquainted, the chin terminates at the junction of the rami of the lower mandible in an obtuse rather rounded curve.

This curve is distant in *flavigaster*, the species which our present species most closely resembles, from 1 to 1·2 inches, according to sex, from the tip of the lower mandible. We have a very large series of our own collecting of both sexes, and there is no doubt on this point. In *chrysogenys*, of which we have an equally large series, it is about 1·0 inch; in *robusta* about 1·7 inch; in what I call *crassirostris*, but which Captain Shelley

informs me is *Temminckii*, it is 0·9; in *longirostra* it is 0·8 to 0·9; in *modesta*, 1·0 to 1·1; but in this supposed new species the chin ends in a comparatively sharp point only 0·6 from the tip of the lower mandible.

Dimensions from skin.—Length, 6·5; wing, 3·8; tail, 2·0; tarsus about 0·9; bill at front from forehead, 1·3.

The plumage is precisely, so far as I can discover, that of *flavigaster*, brighter and yellower than the great run of specimens of this species, but not brighter than one very bright specimen that we obtained at Pulo Seban. There is, however, an obscure yellow line down the centre of the chin and throat not observable in any of our very large series; the feet, too, in the skin, though I attach but little value to this, are *extremely* pale yellowish white, quite different from, and much paler than, those of any of our specimens, and besides our own collections we have numerous native prepared skins; but *the* difference is the difference of the bill; not only is the bill much shorter but it is actually scarcely half the breadth at the base. At the base, where the feathers end on the lores, it is only 0·22 broad; the bill of *flavigaster* in a fine specimen similarly measured is over 0·4. It is narrower even, or quite as narrow as in the much smaller *A. chrysogenys*, and it is much shorter than in that species. Between the nostrils the culmen is even more flattened and rounded than in *flavigaster*, but beyond them the ridge of the culmen is more sharply angulated than in *chrysogenys*; but the point by which it may be at once separated is the extraordinary length and sharpness of the chin angle, already fully discused.

This bird may not be new, but I am unable to identify it; and I think it probable that owing to its extreme similarity to the common *flavigaster* it may hitherto have escaped observation.

Cyornis albo-olivacea *Sp. Nov.*

Above rufescent olivaceous, most rufescent posteriorly; entire lores white or greyish white: lower surface snow white, with an olive grey pectoral band, and sides and flanks tinged with the same color; legs and feet white and small; bill large, 0·7 at front; wing 3·1.

We obtained in the neighbourhood of Malacca a single specimen of a *Cyornis*, which appears to me to be undescribed, and for which, in the preparation of a catalogue of our Malayan birds, I find it necessary to propose some name. Unfortunately our specimen was not sexed, and it may be a female, but I believe it to be a male of a species in which the two sexes do

not differ. Whether male or female it differs conspicuously from all the following species, all of which are represented in my museum.

Cyornis unicolor; Blyth, *Cyornis cyanoplia*, * Boie; *Cyornis rubeculoides*, Vigors; *Cyornis elegans*, Tem; *Cyornis Tickelliæ* Blyth; *Cyornis ruficauda*, Sev; *Cyornis Mandellii*, Hume; *Cyornis olivacea*, Hume; *Cyornis magnirostris*, Blyth; *Cyornis pallipes* Jerd; *Cyornis vivida*, Swinhoe.

It is also clearly distinct, to judge from descriptions, measurements, and figures from *Cyornis banyumas*, Horsf. *Cyornis rufifrons*, Wall, and *Cyornis cantatrix*, Tem.

It will not do for *Cyornis beccariana*, as the wing is too large, and the feet, even in the dry skin, almost white, whereas Salvadori says that in his species the feet are dusky.† Neither will it do for *Cyornis simplex*, Blyth, *Ibis*, 1870, 165, with which it agrees in its white lores, but differs in its much larger size (wing 3·1; agains 2·75 ♂ and 2·65 ♀ of *simplex*) and in its snowy white chin, throat and abdomen, and white legs and feet.

Certainly, after carefully looking into the matter, the species appears to me to be new.

It is a true *Cyornis*; the bill almost absolutely identical with that of *Cyornis magnirostris*, from every stage of which it differs conspicuously in other respects.

Dimensions from skin.—Length, 6·25; tail, 2·9; wing, 3·1; bill from forehead straight to point, 0·7; tarsus, 0·65.

Entire bill black; legs and feet white; claws very pale horny; entire lores white or greyish white; forehead, occiput, crown, cheeks, ear-coverts, entire mantle, a slightly rufescent olive brown, slightly more rufescent on the rump; tail rufous brown, margined with dull pale ferruginous on the outer webs; wings rather pale hair brown; all the feathers but the primaries margined broadly on the outer webs with the color of the back, slightly more rufescent on the secondaries and tertiaries, which are almost entirely of this color; chin, throat, upper breast, abdomen, vent, lower tail-coverts, wing-lining and axillaries pure white; a broad greyish olivaceous pectoral band; sides tinged with the same color.

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* *C. cyanpolia* is, as Blyth remarks, extremely close to *unicolor*, but assuming our specimens killed in the southern part of the Malay Peninsula to be true *cyanopolia*, this differs from *unicolor* of Sikkim by its decidedly smaller bill, its more slender feet and claws, and the somewhat brighter hue of the frontal and supercilary feathers. Moreover, the shafts of the tail feathers in *unicolor* are almost white on their under surface, while in *cyanopolia* they are brown.

† No doubt, Blyth, *Ibis*, 1870, 165, says the legs are pale, but Salvadori may be presumed the best authority, as it was he who described the species.

Hierococcyx nanus, *Sp. Nov.*

Like H. fugax, *but wings* 5·5 *to* 5·7, *and with a double dark moustache on each side.*

I am obliged to assign provisionally the above name to the Southern Tenasserim birds, as I am quite unable to reconcile their dimensions with those of the Malaccan form identified by Cabanis and others with *fugax*, or with those of any other *Hierococcyx* of which I can find a record.

In *fugax*, which it most closely resembles, the wings vary from 6·9 to 7·7, whereas in our Tenasserim series the wings vary from 5·5 to 5·7. The plumage appears to me to be almost identical; at any rate I have only been able to hit upon one single, apparently constant, point of difference, but not only do the wings average nearly 2 inches shorter, but the bills are literally scarcely half the *bulk* of those of Malaccan *fugax*.

None of our specimens, all procured in the neighbourhood of Bankasoon at the end of April and May, were, I regret to say, measured in the flesh, as Davison was elsewhere at the time, but they were all carefully sexed by one of his assistants.

For purposes of comparison I subjoin measurements carefully taken from the skin of our specimens of *nanus*, and a rather small specimen of *fugax*, corresponding absolutely, except *one* respect, with them in plumage :—

		L.	W.	T.	B. at front from frontal bone.	B. at margin of feathers.	United height of both mandibles at margin of feather.	Ts.	Mid toe and claw.
Nanus.	♂	10·5	5·63	5·5	1·06	0·78	0·28	0·7	1·02
	♀	10·2	5·65	5·3	1·06	0·78	0·26	0·77	1·06
	♀	10·6	5·7	5·9	1·06	0·82	0·29	0·77	1·02
	♀	10·3	5·68	5·3	1·11	0·81	0·28	.0·77	1·1
Fugax.		12·0	7·0	6·3	1·22	0·92	0·4	0·83	1·2

The one apparently constant point of difference in the plumage between this species and *fugax* is, that whereas in *fugax* the entire cheeks, ear-coverts and sides of the head seem to be grey, in *nanus*, a very broad grey stripe descends slanting from the anterior half of the lower portion of the eye. To this succeeds from the central portion of the lower margin of the orbit, a broad white stripe just tinged with grey, occupying the greater portion of the ear-coverts, and then the feathers from the posterior portion of the lower margin of the orbit and the tips of the upper ear-coverts are again dark grey. From the posterior angle of the eye a line of pure white feathers, in some, here and there slightly tinged with ferruginous,

runs down and meets the dark centred ferruginous tipped feathers of the sides of the neck, dividing the second dark grey stripe from the dark-colored top of the head, so that the present species has two conspicuous broad deep slaty grey moustachial stripes, one from the anterior, one from near the posterior, margin of the eye. I can trace nothing like this in any of my Malayan specimens of *fugax*.

The whole of the lower parts are white, tinged creamy, on the lower throat and breast and more feebly so on the middle of the abdomen and tibial plumes; and all these parts with conspicuous black central stripes; chin, upper throat and lower tail coverts pure unmarked white; forehead, crown, occiput and nape deep brownish slaty; sides of the neck ferruginous; the feathers dark centred; nape similar, but the feathers feebly margined with pale ferruginous, and one or two of the feathers on each side white tipped; entire mantle, wings and back deep brown; the feathers, some of them very obscurely margined with dull ferruginous, shewing that the birds are not quite adult, and spots of the same color on the outer webs of the quills; the inner webs, except towards the tips of the primaries, with broad triangular buffy white bars, coalescing at the margin towards the bases of the feathers; tail tipped with sordid white, then an 0·8 subterminal blackish band, then an 0·6 to 0·8 pale grey brown interspace, the next succeeding 0·5 blackish brown band, cuspidate on its lower margin, then an 0·5 pale interspace, then an 0·45 dark bar, also cuspidate on the lower margin, then an 0·5 interspace, and then another dark bar. The whole of which, as well as half of the last interspace, hidden by the upper tail-coverts. The entire wing-lining and edge of the wing at the carpal joint uniform cream color.

This species is doubtless a Siamese bird, finding its way like *Pitta gurneyi* into the extreme southern portions of the Tenasserim province.

Pelecanus longirostris, *Sp. Nov.*

Like P. onocrotalus, *but with a longer and narrower bill, and with the rib of the upper mandible much more raised.*

My museum has contained, for the last seven years, a Pelican which I am unable to identify, and which has hitherto borne the above manuscript name. This specimen was shot at Dacca by some of my men who were working under, Mr. F. B. Simson, the Commissioner's charge, along with several *onocrotalus* and *philippensis*.

Hitherto I have refrained from publishing the species, in the hopes that I might be able to procure further specimens; but year after year has passed away; and, though I have been vigorously collecting this genus, no second specimen has yet turned up, and I, therefore, now notice the species in the hopes that, attention being drawn to it, some of my readers may be able to secure additional specimens and throw some further light upon the subject.

The following are the dimensions of the bird taken from the dry skin:—

Length, 4 ft. 6 in.; tail, 8·0; wing, 27·0; bill at front from margin of feathers to end of nail, 18·1—Note that the frontal feathers form a sharp point as, but more acute than, in *onocrotalus*, and advance right to the corneous portion of the bill, instead of, as in *onocrotalus*, about half an inch of bare skin intervening between the last feather and the corneous portion of the bill;—tarsus, 5·25; mid toe and claw, 6·0. Schlegel gives 17·0 as the maximum length of the bill of my specimen of *onocrotalus* in the Leyden Museum—17·5 is the greatest length of my bill in my *extremely* large series of this species, and this length is only attained in old males, whereas my specimen of *longirostris* is a young bird that has not yet completely moulted into the white plumage of the adult. Then, again, although the bill is *longer* it is actually *narrower* than in *onocrotalus*. *Onocrotalus*, old male, with the bill 17·5 in length, has the bill 1·88 in width at the widest part, namely 3 or 4 inches from the point, whereas young *longirostris*, with the bill 18·1, has the bill only 1·7 wide at the widest part.

What makes it the more remarkable is that young male *onocrotalus* in the same stage of plumage as this young *longirostris* have the bills only 14 to 14·5 in length, so that, judging from this analogy, the adult *longirostris* would have a bill over 20 inches in length.

There is another peculiarity about the bill of this supposed new species. In *onocrotalus* about, say, the middle of the bill, the central rib or culmen rises as a rather flat convex above the level of the rest of the upper mandible, but in *longirostris* the rib is narrower; it rises up nearly perpendicularly as a bar for a quarter of an inch, and then the curved portion is above this.

The general color of the whole bird is dull white; the primaries, their greater coverts, the winglet and secondaries a deep brown; all the secondaries profusely silvered on their outer webs; the secondary greater coverts, the tertiaries, and the longest scapulars are pale wood-brown, margined with whity brown, and more or less silvered with grey; a few of

the smaller coverts, just at the junction of the wing with the body, dark-brown; the tail white, but freckled and mottled at the tips of the feathers with blackish dusky; the whole foreneck, breast, and abdomen intermingled with buff-colored feathers; on the occiput indications of a very short dense crest, from which a short hog mane runs, decreasing in size, about 3 inches down the back of the neck.

The facial space appears to be shaped as in *onocrotalus*, but, as already mentioned, the frontal feathers come to a sharper point and advance further forward than in any *onocrotalus* that I have examined.

I have no record of the colors of the soft parts, but those of the upper mandible have clearly not been the same as those in *onocrotalus*, some traces of which may always be detected even in the dry skins. As far as I can judge the legs and feet have been reddish fleshy or orange; they have clearly not been lead color.

Recently-described Species.

Republications.

Bambusicola fytchii, *Anderson. P. Z. S.*, 1871, 214.

B. hopkinsoni, *God.-Aust.* J. A. S. B., XLIII., Pt. II., 172. 1874. Descr. S. F., III., 399.

I have already, *loc cit*, reproduced Major Godwin-Austen's description of his bird from the Khasia Hills. I have no doubt now that the Khasia Hill and Yunan birds are identical. I will first reproduce Dr. Anderson's original description:—

♂ Pileo brunneo-ferrugineo: fascia lata superciliari in fronte conjuncta utringue elongata, albescenti-cinerea; fascia pone oculos nigra: auchenio cinnamomeo: interscapularibus et tectricibus alarum cinereo-olivaceis, maculis subtriquetris rufo-brunneis, nigro terminatis et plumis brunneo-nigro obscure lineolatis: dorso, uropygio et tectricibus caudæ superioribus cinereo-olivaceis, nigrobrunneo transversim obscure nitideque notatis vel subfasciatis, interdum nigro parce maculatis, maculis triangularibus albescente cinereo terminatis: rectricibus cinnamomeis, duabus mediis nigro-brunneo undulatim fasciatis, fasciis ochraceis pallide marginatis: duabus sequentibus nigro-brunneo obscure lineolatis: loris, mento gulaque pallide ochraceis: jugulo rufo-ochraceo et cinnamomeo longitudinaliter vario: pectore lateribusque ejus cinnamomeis alboque ocellatis et nigro parce maculatis: pectore, ventre crissoque pallide rufescenti-albis, maculis magnis subrotundatis et nigris: hypochondriorum plumarum maculis permagnis et triangularibus:

remigibus cinnamomeis, secundariorum marginibus externis brunneo et cinereo obscure marmoratis: remigibus tertiariis rufo-brunneis, apicibus extensis nigris et albescente cinereo tenuiter marginatis: marginibus externis cinereo et albo tenuiter marmoratis.

Long. tota, 12; alæ, 5·80; caudæ, 4·20; tarsi, 1·58; rostri a rictu; 9·5; a fronte, 8 6.

♀ *Cauda magis brunnea: fascia post oculos, cinnamomea: calcari minuto.*"

Except as regards Dr. Anderson's dimensions, which were probably taken from a dried skin, a male obtained at Shillong, by Mr. Cockburn, agrees very well with the above.

These dimensions of Dr. Anderson's can scarcely have been very carefully taken, since they give the tarsus of the male as 1·58, whereas Godwin-Austen gives the tarsus of a female *fytchii* at 1·7.

Now, if the reader will turn to Major Godwin-Austen's description, S. F., III., 400., he will observe the several points on which Major Godwin-Austen lays stress as indicating the probable distinctness of *fytchii* and *hopkinsoni*—a distinctness in which I do not believe because they do not hold good in my specimen from Shillong, which agrees in almost all the points to which Major Godwin-Austen refers with *fytchii*, not with *hopkinsoni*.

In the first-place the tarsus measures 1·82, and the mid-toe 1·65. In the second place, the black terminal spot on the flank, feathers is not invariably heart-shaped, in fact only one spot can possibly be called heart-shaped, The rest are triangular, or shaped as in the plate of the P. Z. S. In the third place, on the middle back and rump, there are no black spots, only a few of the lateral tail-coverts exhibit small rather oval black spots, margined below with buffy white. In the fourth place the feathers of the upper back are not spotted with white at all, but the scapulars and some of the wing-coverts nearest them show greyish white zig-zag lines. Fifthly the chin is neither dark brown nor *very pale*, but exactly as described by Dr. Anderson, pale ochraceous like the lores and throat. Sixthly there is not a trace of barring on the tail. Seventhly the tail beneath is pale dingy reddish brown at the base and dull brown at the tips.

Under these circumstances, as this bird, which agrees so well with *fytchii*, was obtained exactly at the same place as Major Godwin-Austen's type, we may I think safely suppress the name *hopkinsoni*.

My bird measured in the flesh:—

Length, 14; expanse, 19; wing, 6·45; tail from vent, 4·75, from base, 4·8; bill from gape, 0·9; the spur is exactly 0·4 long.

The legs and feet were brown, not grey; the irides dark brown.

Notes.

Referring to my remarks on the genus *Volvocivora*, pp. 205-207, I note that *all* our specimens from the Malayan Peninsula are too small for *fimbriata*, the wings varying from 3·6 to 3·8. Whether the true *fimbriata* from Java, with the wing 4·3 to 4·1 (misprinted 4·3 to 4·4, *ante* p. 205), really occurs in the Malayan Peninsula I cannot say; at any rate the other smaller species is the only one we have met with, and is common from Malacca to Johore. This smaller species should apparently stand as *culminata*, Hay, and *V. Schierbrandi*, V. Pelz., appears to be identical. Count Salvadori informs us that the abrupt separation of the darker grey of throat and breast from the lighter color of the abdomen, which was supposed to be characteristic of the species, is merely due to the type specimen being an extremely bad one, and that in good specimens the transition is gradual. Curiously enough in one of our specimens also a very bad one this same apparent sharp definition of the much darker color of the throat and breast is very noticeable, but in other specimens nothing of the kind occurs; and, as far as I can make out, this species chiefly differs from *fimbriata* in its markedly smaller size.

The following is the original (and not very satisfactory) description of *culminatus* (Madras Journal of Science, Vol. XIII., 1844-1845 p. 157.):—"I received this species from Malacca, and it seems to differ from any that have as yet been described. General cast of the plumage iron-grey, uniform on the head; back of the neck and back, under parts and upper tail-coverts lighter, speckled and striated with white; a black mark from the base of the bill to the eye; primaries slightly edged with white, secondaries more so; under surface of the wings uniform hair-brown without white; two middle tail feathers cinerous brown, tipped with white; bill, moderate not compressed, and high; bill and feet black.

Dimensions.

Total length	6·7	Tarsus	0·75
Wing	3·7	Bill from base	0·6
Tail	3·3	Bill from gape	0·8

Hitherto we have only procured *Butalis grisola*, the European Spotted Grey Flycatcher, (described S. F., III., 467) at the foot of the Sukit Pass near the northern boundary of Ladak, at Sambhur, Jodhpur, Anadra in Sirohi, Northern Guzerat, Kutch, Kattiawar, and Scinde. On the 28th of September we shot a

specimen, a male, near the top of Jacko, the central hill of the Sanitarium of Simla, and have since seen two others.

This specimen measured in the flesh:—Length, 6·4; expanse, 10·5; tail, 2·55; wing, 3·51; tarsus, 0·59; bill from gape, 0·8; weight, 1·25 ozs.

The irides were dark red brown; the bill dull black, whitish at base of lower mandible; the gape dull yellow; legs and feet very dark plumbeous; claws blackish.

I omitted to notice in my original description, taken from a skin, in which this peculiarity is not visible, that the eyelid feathers are a delicate pale fawn color, or fawny buff.

"Mr. Brooks remarks *in epist*: "You require to correct your "reference to *Burnesia gracilis* in Stray Feathers. I compared "the two birds in Tristram's collection. True *gracilis* is a much "more robust bird, with a longer bill, and the coloration differs "conspicuously. The eggs are as wide apart as possible—*gracilis* "having a red *prinia*-like egg, while that of the other is light "greenish ground colour, freckled with pale reddish brown. "Our Indian birds must stand as *lepida*."

Personally I am unable to offer any opinion on this subject as I have only seen Indian birds.

The following are the dimensions and a description of a male *Pratincola insignis* obtained by Mr. Mandelli in the Lower Hills of the Bootan Dooars in April.

Dimensions from the skin:—

Length, 5·0; wing, 3·3; tail, 2·3; bill from forehead, 0·69; tarsus, 0·97; mid toe and claw, 1·03; hind toe and claw, 0·7.

Exposed portion of first primary, 0·8; third primary longest; fourth and fifth each a shade shorter; sixth longer than second; second 0·3 shorter than third.

Entire cap, lores, cheeks, and ear-coverts black, many of the feathers faintly fringed at the tips with pale brown; nape dark brown; feathers much fringed at the tips with the same pale buffy brown; chin, throat, sides of the neck, behind the ear-coverts, and a broad imperfect collar at the base of the neck, white; back and scapulars brown, all the feathers fringed with pale buffy brown; rump greyish buffy, more distinctly tinged buffy at the tips; upper tail-coverts white, with a buffy tinge towards the middle; wings dark brown; the primaries white at their bases on both webs, so as to form a conspicuous wing spot; all the quills broadly white on their inner webs towards their bases; tertiaries and all their coverts, and the greater and median coverts of the later secondaries white; first and

second primaries very narrowly margined white towards the tips; secondaries tipped inconspicuously with dull white. All the quills more or less margined paler on their outer webs; third to sixth primaries conspicuously emarginate on outer webs.

Tail dark brown, very narrowly margined and narrowly tipped with pale fulvous brown; breast rather pale ferruginous chestnut; rest of lower parts very pale fulvous; axillaries white grey on their inner webs; wing-lining mingled pale brown and fulvous white.

In the Ibis for 1876, p. 34, in his remarks on the late Colonel Tickell's manuscript illustration of Indian Ornithology, the Marquis of Tweeddale says:

"Having figured and described individuals of the Tenasserim race of *Tiga shorii* (*T. intermedia*, Blyth,) Colonel Tickell gives a plate and description of a distinct species of the same genus, obtained in the forests on the Teesta River, Sikkim. Under the title of *Chrysonotus biddulphi* it is thus described: 'Iris labelled 'hazel;' bill and legs blackish neutral; crown, crest, and entire nape, as well as lower back, silky scarlet; forehead, ramus, and throat, and all foreneck pale brown; rest of face and neck white; a black line from hinder rim of eye down across the auriculars to the scarlet of nape, which it borders for a short space; another line from rictus down latero-frontal neck; another along lower edge of ramus, joining the rictal stride at end of ramus; and another branching from the last midway on ramus and joining the rictal-stripe lower down neck. All breast and lower parts, as in *Shorii*, but with browner edges to the feathers; upper parts the same, but a broad black band runs across top of black and separates the scarlet and white of nape and neck from the gold-yellow of upper parts. Wing, $6\frac{1}{16}$; tail, $4\frac{3}{4}$, (beyond wing $1\frac{3}{4}$); bill, $1\frac{1}{2}$; tarsus, 1; inner toe, $\frac{5}{16}$." This form does not appear to have been since recognized."

As a matter of fact, however, this is an absolutely exact description of some males of the true *Shorii*. It answers absolutely in every particular to a male of this species which I shot at Kaladoonga just below Nynee Tal, on the 29th September 1866, the only difference being that in my specimen the wing is 6·2. The amount of the brown and the arrangement of the stripes on throat and neck varies in different individuals. I cannot understand how the Marquis of Tweeddale says that this form does not appear to have been since recognized. This form is what we in India at any rate all understand as the true *Shorii*, which occurs plentifully in the lower valleys of the outer Himalayas from the Dhoon to Bootan, and where low

valleys continue, as in the case of the Surjoo, the Ramganga, &c., for some distance into the hills, is, in these low valleys, found comparatively far into the interior.

One of the most remarkable instances of birds straying far away from their natural habitats, which has come to my notice for many years, is the capture at Dilkooshah, in the north-east corner of the Cachar District, and 170 miles distant from the sea, of a fine specimen of *Phæton flavirostris*.

In the last batch of birds, sent me by Mr. Inglis, I found a specimen of this species. I at once wrote and asked him who gave it him and where it came from, for though I have seen the bird from the Andamans, I have never actually seen a specimen shot elsewhere on our Indian Coasts.

In reply, he informed me that the bird was captured close to his house and brought to him alive, and he sent me the following note :—

"This bird was brought to me alive on the 9th of April "last. It was captured as follows: Four small boys were out "in a *dug-cut* on the Barrak close to my bungalow, picking "up bits of drift wood. They observed the bird perched on "a branch overhanging the water, and every now and then, "when it dived, they noticed that it remained a considerable "time under water.

"With the intention of capturing it, they pulled the boat "towards the place where it was fishing. The bird took no "notice of them, but continued, at intervals, diving into the "pool. One time as the bird disappeared under water, the boys "shot the boat forward, and as the bird came up one of the boys "struck it down with his oar.

"I kept it in a cage for some hours, but it struggled so much "that I killed it lest it should damage its plumage.

"I had no idea it was a prize, or you should have had it "sooner."

I suspect the diving and remaining under water is an invention of the small boys, because at sea they certainly do not go under water. At any rate the common *P. indicus*, which I have watched fishing for hours, never does; they drop on to their prey just like a Tern and splash into the water, possibly the whole head and neck, at most the upper half of the body, but they never certainly go clean under water. It is, however, within the limits of possibility, that plunging into the less dense medium of fresh water, such birds might get under water, although such is not their habit at sea, and the small boys' story may possibly be less untrue than I, *at present* at any rate, believe it to be.

Major Godwin-Austen, Pr. A. S B., June 1877, describes a supposed new *Chlensicus* under the title of *C. ruficeps*, var *Atro superciliaris*, in the following terms:—

"No mention being made of any black eyebrow in the original discription of *C. ruficeps*, and finding it absent in the type in the Indian Museum, I now describe the variety from Sudiya, Upper Assam."

"*Description.*—Bright ferruginous; on the head same colour, paler on the nape and ear-coverts; back and wings pale olive-brown; quills tinged rufous; tail brown, a narrow black streak over the eye; beneath dull white with an earthy tinge; legs dark plumbeous."

"Length about 6; wing, 2·85; tail, 3·3; tarsus, 0·90; bill at front, 0·43 inches."

"Larger than *Ch. ruficeps* and not so white below."

I do not consider this a valid variety. The bird is so rare that even my museum contains only a single specimen, but that a very fine one from Sikhim. This shows a distinct blackish dusky (not quite black), supercilium beginning a little in front of the middle of the eye and extending backwards over the ear-coverts. My bird measures in the skin:—Length, 6·0; wing, 2·83; tail, 3·15; tarsus, 0·92; bill, straight from frontal bone to tip, 0·52. This is, I believe, a male; the type was probably a female.

Jerdon only described the female *Brachypteryx hyperythra* (B. of I., 495); he does not seem even to have seen or procured the male. This latter has been repeatedly procured by Mr. Mandelli, who sent me, from time to time, some splendid specimens of it along with the females.

I do not know whether any one else has, subsequent to the publication of the *Birds of India*, described the male, but the latter seems to be so little known that a brief description of it will not be useless.

♂. Length, 5; wing, 2·5; tail, 2·0; bill from forehead to point, 0·6; tarsus, 1·13.

The entire upper surface of the bird, including the face, sides of the head, sides of the neck, and sides of the body under the wings, blackish cyaneous; the lores and feathers at the base of the lower mandible, and the eyelid feathers immediately above and below the eye, and sometimes more or less of the ear-coverts, black; chin, throat, breast, abdomen, lower tail-coverts intense orange ferruginous, a little paler on the chin and throat, and again often decidedly paler in the middle of the abdomen, in some specimens becoming almost creamy. There is a short,

broad, more or less, concealed silky white supercilium, beginning over the middle of the lores, and reaching a little further back than the middle of the eye. In many specimens no trace of this is to be discovered until the feathers of the forehead and anterior part of the crown are lifted.

THE DOUBTS ENTERTAINED as to which of our two *Shaheens*, *F. periginator*, apud Jerdon, and *atriceps*, nobis, was the real *peregrinator*, and again as to the distinctness of the northern and southern forms, have made me for long anxious to obtain Sundevall's original description.

To my kind friend, Mr. J. H. Gurney, I am indebted for the following extract from Vol. XVIII, An. Nat. Hist., for 1846, p. 102, which I republish, as it will doubtless possess the same interest to many of my Indian readers that it does to me. The description is extracted from an article of Strickland's entitled—

"*The Birds of Calcutta collected and described by Carl. J. Sundevall.*"

"The following memoir is contained in a small but valuable collection of scientific papers published at Lund in Sweden, under the title of "Physiographiska Sällskapets Tidskrift." One volume only has appeared in 8vo., dated 1837 and 1838, and, like the greater part of the scientific literature of Scandinavia, is almost wholly unknown in this country. As Professor Sundevall's memoir on the Birds of Calcutta was likely to interest Anglo-Indian naturalists, I have long wished to get it translated; but, as there is no Swedish and English Dictionary or Grammar to be procured in London, I was unable, either to make the translation myself, or to obtain one from others. By the kindness, however, of M. Bertram, a distinguished German and Scandinavian scholar residing in Oxford, I am now enabled to present a translation of this interesting memoir."

* * * * * * * * * *

59. *Falco peregrinator*, sp. nov. (obs. non ad Calcutta visus)

Niger: subtus ferrugineus, antice pallidior pectore longitudinaliter nigro-maculato, abdomine, crisso, tibisque irregulariter nigro fasciatis; cauda alas superante. (Maxime affinis *F. peregrino*)

♀ (in mari indico d 19 Junii) superne tota, cum alis, lateribus capitis usque infra oculos et macula genarum, latiori quam in *F. peregrino*, pure nigra, absque marginibus pallidis plumarum. Supercilia nulla distincte colorato. Gula et collum antice

albido ferruginea striolis tenuibus nigris: colore rufo et latitudine striolarum deorsum auctis. Latera corporis, venter, tectrices alæ inferiores et tibeæ crebre, saturate rufo nigroque, maculata fasciata. Alæ nigræ remiges maculis pogonii interioris transversis, fulvis. Penna 1a et 3a æquales. Rectrices fere æquales nigræ, margine apicis albidæ; pogonium internum maculis 9 angustis transversis rufescentibus; pogonium externum maculis obsoletis, cinerascenti micantibus. Pedes validissimi, toti flavi. Rostrum fuscescens. Cera et orbita fusco-flavescentes. Iris nigrofusca. Oculi magni, valde convexi prominuli. Longit. 18 poll. *sv.** (in cute asservata cauda 2¼ poll ultra alas.) Ala flexa, 330, mill; tarsus, 47; digitus medius, 53; cum ungue 68; cauda, 180. Rostrum e fauce, 31; altit, 20; cum cranio, 70; Cubitis, 98. Statura *F. peregrini*, vel paullo robustior rostrum præsertim crassius et convexius apparet, alæ, ratione reliquarum partium, paullo breviores.

On my homeward voyage from Bengal I obtained this handsome Falcon in 6° 20′ N. between Ceylon and Sumatra, rather nearer the last named island, and at least 70 (Swedish) miles from the nearest land, *viz.*, the Nicobar Islands. It settled u[illegible]the edge of a sail, whence it was shot down. I have only [illegible]he specimen described, and have procured no information [illegible]y similar bird, either in books or collections. It might [illegible]ps be regarded as a tropical variety of *Falco peregrinus*, [illegible] the pure black on the upper parts, the shorter wings, and [illegible]nusually large projecting eyes, give this bird a marked distinction from the common form of that species. *F. peregrinus* occurs, moreover, in New Holland, gray as with us, according to Vig. and Horsf., Linn. Trans. Vol. XIII†

It seems that a considerable number of birds annually fly across from Sumatra and Ceylon, though they are separated by a sea of more than 200 (Swedish) miles in width. Only during my voyage through this channel I procured ten or twelve birds, most of which are mentioned above, met with half way between these two islands.

All sailors have opportunities of seeing land birds at a very considerable distance from shore; and it seems not incredible that certain strong flying species may cross the ocean even between America and the Old Continent, though, probably, most of these which venture upon such a journey perish before they have proceeded half way. Amongst other instances it may be mentioned that Catesby, in his last voyage to America,

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* The Swedish inch is given as equal to 0·9742 of an English inch.

† The New Holland bird is, however, distinct from *peregrinus*; it is the *F. melanogenys* (Gould).—H. E. S.

met with an owl in the midst of the ocean in 26° N. He does not tell us what species it was.*

Letters to the Editor.

SIR,

CAPTAIN SEDGEWICK, R.E., has just brought me a couple of skins of *Coracias garrula* from the Mhairwarra Hills, 40 miles south-west of this. There is nothing astonishing in finding it so far west; but Captain Sedgewick writes that "it is the common Roller of the Mhairwarra hills, and that he did not see a single specimen of *indica*."

Garrula is doubtless, as you say in STRAY FEATHERS, Vol. I., page 168, a hot-weather visitant; and its numbers this year are doubtless due to the prolonged and heavy westerly gales we have had this year; but I will get Captain Sedgewick to look out in the cold weather.

I believe *garrula* spends the winter in Arabia. It certainly appears on the north coast of the gulf (where *indica* is a permanent resident) in March.

Did I tell you that I have *Pitta bengalensis*, not in A[illegible] list, from Sambhur?†

O. ST. JOHN.

MAYO COLLEGE, AJMERE;
31*st August* 1877.

SIR,

ALLOW me to offer the following remarks on some of the birds of prey referred to in STRAY FEATHERS, Vol. V., pp. 124, 125 and 128.

The adult birds of *Lophospizias trivirgatus* differ from their nearly-allied northern congeners, not only in their smaller size but also in the very bright fulvous or rufescent tints on the upper breast and on the sides of the neck; which, so far as I have observed, are never so bright or so conspicuous in the adult birds of the northern race (*L. rufitinctus* of McClelland=*indicus* of Hodgson), as they are in true Southern *L. trivirgatus*.

* *F. peregrinator* appears to migrate across the ocean to great distances from India. I possess a specimen which I refer to this species, procured in 1833 on board-ship between the Mauritius and Madagascar. M. Sundevall gives a good figure of the species, and it is also represented under the name of *F. shaheen*, by Mr Jerdon, in his Illustrations of Indian Ornithology, plates 12 and 28.—H. E. S.

† But see, *ante* III., 470.

The Norwich Museum possesses a *Spizäetus* from Japan and another from Formosa; both these appear to me to be the true *S. nipalensis*; and, as the Japanese specimen is fully adult, there can, I think, be no doubt that, in this case at least, the identification is correct.

The Norwich Museum also possesses examples of *Falco peregrinus* from Japan. The adults appear to me to be undistinguishable from European specimens; but young birds from Japan are always, so far as I have seen, very dark about the head, the color of which, especially about the crown and sides, is a blackish brown, resembling the tint of the corresponding parts in young *peregrinus* from the north-west of North America.

J. H. GURNEY.

SIR,

I have much pleasure in adding the following species collected by myself, at Khandalla, in 1871, to the list published by Revd. S. B. Fairbank in STRAY FEATHERS, Vol., IV., p. 250.

104.—Dendrochelidon coronatus, *Tick.*

I shot a single specimen of the Indian-crested Swift at Khandalla in the jungles below the reversing station in May [illegible] I never observed it on any other occasion.

133.—Ceyx tridactyla, *Pall.*

I noticed two or three pairs of this lovely species in a rocky nullah running from the reversing station down the ghats through densely wooded jungles (*Vide* STRAY FEATHERS, Vol. II., p. 455).

165.—Hemicirens canente, *Less.*

I shot a single specimen of the Heart-spotted Woodpecker in the same jungles during my visit to Khandalla in May 1871. There were a pair of them at the time, but the cock bird escaped.

798.—Chalcophaps indicus, *Linn.*

The Bronze-winged Dove is another species of which I only saw one solitary individual, and that I shot below the reversing station in the same jungles.

E. S. BUTLER, *Captain,*
83rd Regiment.

Sir,

Little did I think, when writing to you, about the occurrence of Woodcocks in Bagdad and North Canara, Stray Feathers, Vol. V., p. 140, that I should shortly have the pleasure of adding the species to the Sind list, but such has been the case.

I was taking a stroll yesterday morning (4th November) through the Lyarree Gardens, about two miles from Karachi when a Woodcock (*Scolopax rusticola*, Lin.) that had evidently just been flushed by some natives who were working close by, flopped lazily past me and settled in a field of lucerne grass about ten yards from where I was standing. After turning round and round two or three times, as if trying to get out of the sun, it rose and flew towards some Guava trees about twenty yards off, sitting under one of them. There was no cover, except some short grass insufficient to hide the bird, and I walked up and shot it.

It was not fat, but in fair condition and in lovely plumage, turning out subsequently a superb specimen.

Measurements taken in the flesh as follows :—

Sex.	L.	W.	T.	B at f.	B fr. g.	Exp.	Weight ozs.	Weight drams.
♂	13⅝	7¾	3¼	3	2⅞	24	8	9½

Legs and feet plumbeous flesh; bill fleshy brown, tipped dusky; irides dark brown.

It was doubtless an exhausted bird in course of migration.

E. S. Butler, *Captain*,
83*rd Regiment*.

Mr. Brooks insists that I *must* give a name to the *Reguloides* which had of late years always done duty for *viridipennis*, until I pointed out (*ante*, p. 330) what this latter really was. Of this at present unnamed species, I quoted Mr. Seebohm's full description, *loc cit.* I was unwilling to give a new name to this race or species, because it runs so close to *trochiloides*, that I was not sure that it could be always separated from this. Mr. Brooks, however, insists that it can be so separated, that there is a constant difference in the proportions of the primaries, and that I must name it, and I, therefore, though somewhat reluctantly, propose for it the name of Phylloscopus (*Reguloides*) flavo-olivaceus.

Note that the publication of this number has been delayed, and, although intended to appear on the 1st of November, will not actually issue until December.

Erratum.

Page 257, line 34, *for* "from 7·6 to 7·8" *read* "from 4·6 to 4·8."

End of Vol. V.

INDEX.

Species described or discriminated.

ALBESCENS, *Mandelli.* Podiceps 486
albigena, *Licht.* Sterna 323
albiventris, *Fairbank.* Callene 403*n*
albiventris, *God.-Aust.* Neornis 55
albo-olivacea, *Hume.* Cyornis 488
alpestris, *Pall.* Lillia ... 256
altirostris, *Jerd.* Pyctorhis 249
ampelinus, *Bp.* Hypocolius 349
amurensis, *Radde.* Erythropus 6
antillarum, *Less.* Sterna 325
archetes, *Hume.* Cecropis... 266
arctiritta, *Swinh.* Lillia ... 261
asiaticus, *Hume.* Stercorarius 294
assimilis, *Hume,* Dendrocitta 117
assimilis, *Wald.* Stachyris 56
atrogularis, *Blyth.* Aboricola 44
atrosuperciliaris, *G.-Aust.* Chleuasicus 499
austeni, *Wald.* Zosterops 56
australis, *Steph.* Sula ... 318

BASSANA, *Lin.* Sula ... 306
biddulphi, *Tick.* Tiga ... 497
blakenstoni, *Swinh.* Anthus 345
blanfordi, *Wald.* Drymoica 57
brachyurus, *Vieill.* Micropternus 473

CANENTE, *Blyth.* Hemicercus 25
cantonensis, *Swinh.* Pericrocotus 177*n*
capensis, *Licht.* Sula ... 306
castaneicauda, *Hume.* Siva... 100
chinquis, *Tem.* Polyplectron 40
chrysea, *Wald.* Abrornis ... 55
cinerea, *Blyth,* Muscitrea... 101
cinereus, *Lafres.* Pericrocotus 175
corrugatus, *Tem.* Craniorhinus 118
crispifrons, *Bly.* Turdinus 87
culminatus, *Hay.* Volvocivora 495
cursitans, *Frankl.* Cisticola 90
cyanea, *Hume.* Muscitrea 101
cyanops, *Sund.* Sula ... 307

DACTYLACTRA, *Less.* Sula ... 311
davisoni, *Hume.* Hemixus 111
davisoni, *Hume.* Leioptila 110
davisoni, *Hume,* Megalaima 108
domicella, *Hartl. & Finsch.* Lillia 260

ECLIPES, *Hume.* Chatorhea ... 337
erythrocephala, *Jerd.* Cisticola 95
erythropleura, *Wald.* Suya 58
erythropygia, *Sykes.* Lillia 255
eutolmus, *Hodgs.* Microhierax 127

FIMBRIATA, *Tem.* Volvocivora 205, 495
flavo olivaceus, *Hume.* Phylloscopus 330, 504
frontalis, *Blyth.* Henicurus 248
fusca, *God.-Aust.* Alcippe 54
fytchii, *Anders.* Bambusicola 493

GANGETICA, *Jerd.* Suya ... 138
gouldi, *Hume.* Sterna ... 326
griseigularis, *Hume.* Pyctorhis 116, 251
guttatus, *Tickl.* Turdinus 251

HEMPRICHII, *Bonap.* Larus ... 297
hodgsoni, *Brooks.* Certhia 73
homalura, *Blyth.* Cisticola 93
horsfieldii, *G. R. Gr.* Euplocamus 42
humilis, *Hume.* Ixulus ... 106
humilis, *Müll & Schl.* Poliomtus 130
hyperythra, *Jerd.* Brachypteryx 499
hyperythra, *Layard.* Cecropis 266
hypoleucus, *Bly.* Pomatorhinus 81

Ichthyætus, *Horsf.* Poliocetus 129
igneus, *Blyth.* Pericrocotus 190
ignitus, *Vieill.* Euplocamus 119
ignotum, *Hume.* Pellorneum 334
immodestus, *Hume.* Pericrocotus 177
indica, *Hodgs.* Lophospiza 8
indicus, *Hume.* Phæton ... 302
inglisi, *Hume.* Munia ... 39
inglisi, *Hume.* Pomatorhinus... 33
inglisi, *Hume.* Tinnunculus 5
innotata, *Blyth.* Iora ... 423
insignis, *Elliot.* Phasianus 198
insignis, *Hodgs.* Pratincola 132, 496
intermedia, *Hume.* Lillia... 263
intermedia, *Hume.* Volvocivora 205
intermedius, *Hume.* Allotrius 112
intermedius, *Butler.* Francolinus 211

Jamesoni, *Hume.* Pratincola 239
japonica, *Tem. and Schl.* Lillia 260

Kessleri, *Prijawalski.* Merula 484
khasiana, *God.-Aust.* Suya 59
kienieri, *Gerv.* Spizaetus ... 483

Lafresnayii, *Hartl.* Iora ... 423
lefevrii, *Bald.* Sula ... 306
leschenaultii, *Less.* Taccacua 219
leschenaultii, *Vieill.* Henicurus 249
longirostris, *Hume.* Pelicanus 491

Macrorhyncha, *Stol.* Pratincola... 132
macrorhynchus, *Wagl.* Corvus 461
magna, *Ward. Rams.* Sitta 343
magnirostris, *Wald.* Alcippe 56
manderinus, *Gould.* Picus 53
melanocephala, *Anderson.* Cisticola 93
melanocrissa, *Rüpp.* Lillia 258
melanoleucus, *Gm.* Circus 11
melanorhynchus *Wagl.* Palæornis 21
melanoxantha, *Hodgs.* Pachyglossa 348
melanura, *Hartl.* Volvocivora 206
minuta, *Tem.* Pericrocotus 192
minuta, *Lin.* Sterna ... 325
modestus, *Strickl.* Pericrocotus 176

Nanus, *Hume.* Hierococcyx 490
neglecta, *Hume.* Volvocivora 203
neglectus, *Hume.* Pericrocotus 171, 189
newarensis, *Hodgs.* Bulaca 483
nigroluten, *Marsh.* Iora ... 441
nipalensis, *Hodgs.* in *Bly.* Certhia 77
nipalensis, *Hodgs.* Lillia... 262
nisicolor, *Hodgs.* Hierococcyx... 97
nuchalis, *God.-Aust.* Garrulax 58

Oceanica, *Banks.* Oceanites 291
oglei, *God.-Aust.* Actinura 341
olivacea, *Hume.* Cyornis ... 338
olivaceus, *Blyth.* Pomatorhinus 137

Parva, *Gm.* Sula ... 321
pectoralis, *God.-Aust.* Pellorneum 341
pekinensis, *Swinh.* Tinnunculus 5
perigrinator, *Sund.* Falco 500
persicus, *Hume,* Puffinus 293
phaiocops, *Blyth.* Micropternus 473
piscatrix, *Lin.* Sula ... 312
plumbeus, *Hodgs.* Poliocetus 129

Robusta, *Tristr.* Pratincola 131, 241
rubetraoides, *Jameson.* Pratincola 239
ruficeps, *Blyth.* Chleuasicus 499
rufigenis, *Hume.* Ixulus ... 108
rufiventris, *Vieill.* Ruticilla 36
rufula, *Tem.* Lillia ... 258

SAGITTARIUS, *Cass.* Scops ... 247
saundersi, *Hume.* Sterna ... 326*n*
seebohmi, *Hume.* Phylloscopus 335
sericea, *Wald.* Horeites ... 57
serrator, *Banks.* Sula ... 306
shawi, *Elliot.* Phasianus 198
sibirica, *Dresser.* Limicola 344
similima, *Hume.* Arachnothera 487
sinensis, *Gm.* Sterna ... 325
sirkee, *Gray.* Taccocua ... 219
sordida, *Hume.* Siva ... 104
stenorhynchus, *God.-Aust.* Pomatorhinus ... 542
stoliczkæ, *Brooks.* Corthia 77
striatus, *Bly.* Ixulus ... 107
striolata, *Tem.* Lillia ... 261
submoniliger, *Hume.* Anthipes 105
subniger, *Hume.* Hypsipetes 109
substriolata, *Hume.* Lillia 264
superciliaris, *Vieill.* Sterna 325

TIBETANA, *Saund.* Sterna ... 485
tickelli, *Hume.* Pomatorhinus 32
tiphia, *Lin.* Iora ... 429

VARIEGATA, *Tschudi.* Sula ... 317
vidua, *Hartl.* Volvocivora 206
vieilloti, *G. R. Gr.* Euplocamus 119
viridipennis, *Bly.* Reguloides 330
viridissima, *Tem.* Iora ... 427

WALDENI, *Hume.* Æthopyga 51

Species Noticed.

ABBOTTI, *Blyth.* Trichastoma 59, 141*n*, 151
accipitrinus, *Pall.* Asio 245, 328
acik, *Antin.* Cinnyris ... 271
acornaus, *Hodgs.* Erythrosterna 471
acuta, *Lin.* Dafila ... 47, 234
acuticauda, *Hodgs.* Munia 162
adamsi, *Hume.* Alaudula 327
adelinus, *Bp.* Cinnyris ... 272
ægocephala, *Lin.* Limosa 232, 236
ægyptius, *Forsk.* Merops 227
æñea, *Lin.* Carpophaga ... 39, 418
ænea, *Vieill.* Chaptia ... 401
ænobarbus, *Tem.* Allotrius 112
æralatus, *Tick.* Pteruthius 113—115
æruginosus, *Lin.* Circus ... 226
æstigma, *Hodgs.* Muscicapula 416, 471
æthereus, *Lin.* Phæton ... 302, 303
afer, *Lin.* Cinnyris ... 273
affinis, *Hay.* Calornis ... 38
affinis, *McClell.* Coracias 18, 83, 141*n*, 143, 180
affinis, *Gray.* Cypselus ... 17, 393
affinis, *Gould.* Milvus ... 142, 453
affinis, *Jerd.* Mirafra ... 408
affinis, *McClell.* Pericrocotus ... ...184—186, 188
affinis, *Rüpp.* Sterna ... 301
affinis, *Bly.* Sylvia ... 229, 417
affinis, *Blyth.* Taccocua... 80, 245, 329
akool, *Sykes.* Porzana ... 224
alaudarius, *Bris.* Tinnunculus 4, 226
alba, *Belon.* Ciconia ... 233
alba, *Lin.* Herodias ... 167, 168, 347
alba, *Lin.* Motacilla ... 472
albellus, *Lin.* Mergellus .. 234
albescens, *Mandelli.* Podiceps 486, 487
albicans, *Rüpp.* Aquila ... 470*n*
albicaudata, *Jerd.* { Eumyias / Stoporala } 391 402
albicilla, *Pall.* Erythrosterna 471, 484
albicollis, *Sw.* Rhynchops 225, 235
albifrons, *Boie.* Brachypteryx 104
albifrons, *Jerd.* Pericrocotus 174, 178
albigena, *Licht.* Sterna 285—287, 298, 302, 323, 329
albirictus, *Hodgs.* Buchanga 29, 401
albirostris, *Shaw.* Hydrocissa 20, 84
albiventris, *Fairbank.* Callene 402, 403*n*, 410
albiventris, *Strickl.* Cinnyris 273
albiventris, *G.—Aust.* Nicornis 55
albocristatus, *Vig.* Euplocamus 42

albogularis, *Hartl.* Brachypteryx 87
albogularis, *Blyth.* Dumetia 391, 404
albogularis, *Blyth.* Pomatorhinus 136
albo-olivacea, *Hume.* Cyornis 488
alpestris, *Pall.* Lillia ... 256, 260, 264, 265
altirostris, *Jerd.* Pycnorhis 116, 245, 249, 251, 329
amandava, *Lin.* Munia ... 39
ambiguus, *Hume.* Sturnus 238, 239
amethystinus, *Shaw.* Cinnyris 272
ampelinus, *Bp.* Hypocolius 245, 329, 349, 350
amurensis, *Radde.* Erythropus 6, 7
anæthæta, *Scop.* Sterna 347
andamanensis, *Tytl.* Pericrocotus 175, 192, 195, 197
andamanicus, *Hume.* Cinnyris 71, 275
anglorum, *Ray.* Puffinus 293
angustirostris, *Menetries.* Querquedula ... 234
annectans, *Blyth.* Leioptila 110, 113
anosthætus, *Scop.* Sterna 285, 286, 301
antigone, *Lin.* Grus ... 164
antidarum, *Less.* Sterna 325
apoda, *Lin.* Paradisea ... 277
arboreus, *Bechst.* { Anthus 230 346, 417 / Pipastes
archetes, *Hume.* Cecropis 266
arctivitta, *Swinh.* Lillia ... 254, 261, 266
arcuata, *Cur.* Dendrocygna 47, 169
ardens, *Boie.* Pericrocotus 172, 173, 191, 192, 196—198
ardeola, *Payk.* Dromas ... 212, 232, 236
arenaria, *Tem.* Calidris ... 215, 233, 236
arenarius, *Blyth.* Lanius ... 228
arenarius, *Pall.* Pterocles 222, 231
argala, *Lin.* Leptoptilos ... 233
armata, *Müll. & Schl.* Arachnornphis 70*n*
arvensis, *Lin.* Alauda ... 236
asiatica, *Sw.* Cecthia ... 76, 78
asiatica, *Lath.* Megalaima 27, 108, 109, 113
asiaticus, *Lath.* Caprimulgus 329, 393
asiaticus, *Lin.* Cinnyris 70, 399
asiaticus, *Hume.* Stercorarius 285, 294 295, 296
assimilis, *Hume.* Dendrocitta 117
assimilis, *Hodgs.* Niornis 55
assimilis, *Hume.* Phodilus 138, 353
assimilis, *Wald.* Stachyris 56, 113
athertoni, *J. & S.* Nyctiornis 18, 83, 394
atra, *Lin.* Fulica ... 233
atra, (?) Muscicapa... 278
atratus, *Blyth.* Picus ... 113
atratus, *Blyth.* Tinnunculus 129
atriceps, *Hume.* Falco ... 128, 500
atrogularis, *Blyth.* Arboricola 44
atrogularis, *Tem.* Planesticus 30
atrogularis, *Moore.* Suya 59
atronuchalis, *Blyth.* Lobivanellus 46
atronuchalis, *Blyth.* Sarcogramma 164
atrosuperciliaris, *G.-Aust.* Columbicus ... 499
aurata, *Blyth.* Arachnothera 113
aurantia, *Gray.* Seena ... 169, 235
aureola, *Vieill.* Leucocirca 401
aureopygia, *Hay.* Phœnicornis 172*n*
aurifrons, *Tem.* Phyllornis 417
aurita, *Lath.* Syrrhoctides 231, 419
austeni, *Jerd.* Anorrhinus 60, 117
austeni, *Wald.* Zosterops 56
australis, *Shaw.* Mycteria 419
australis, *Gould.* Nectarinia 274
australis, *Steph.* Sula ... 305
306*n*, 307, 318, 320, 321
avensis, *Blyth.* Volvocivora 203—205
avocetta, *Lin.* Recurvirostra 233
azurea, *Bodd.* { Hypothymya ... 30, 149 / Myiagra...

BABYLONICUS, *Gurney.* Falco 140
bactriana, *Hutton.* Carine 350
bactriana, *Bp.* Pica ... 281
badiosus, *Tem.* Microptternus ... ... 479—481
badius, *Gm.* { Astur 8, 81 / Micronisus 114

badius, *Raffl.* Micropternus 477, 479, 481
badius, *Horsf.* Phedilus 201
bakhamuna, *Forst.* Strix 135
bakhamuna, *Lath.* Strix 135
banyumas, *Horsf.* Cyornis 489
barbarus, *Lin.* Falco ... 140
bassana, *Lin.* Sula ... 305, 306
bassana, *Thomp.* Sula ... 307*n*
batassiensis, *J. E. Gr.* Cypselus 393
baya, *Blyth.* Ploceus ... 61*n*, 147, 221, 323, 329, 418
beavani, *Wald* Prinia ... 141*n*, 158
beccariana, *Salvad.* Cyornis 489
becarii, *Salvad.* Æthopyga 71*n*
belangeri, *Less.* Garrulax 113, 141*n*, 156
bengalensis, *Gm.* Alcedo 19, 143, 208
bengalensis, *Gm.* Centrococcyx 28
bengalensis, *Gm.* Centropus 146, 385
bengalensis, *Briss.* Ficedula 428
bengalensis, *Gmel.* Gyps... 245, 322, 328
bengalensis, *Klein.* Luscinia 430
bengalensis, *Blyth.* Microhierax 126
bengalensis, *Gm.* Palæornis 21
bengalensis, *Gmel.* Pitta 502
bengalensis, *Lin.* Ploceus 210, 221, 323, 418
bengalensis, *Gm.* Pseudogyps 142
bengalensis, *Lin.* Rhynchæa 46, 223
bengalensis, *Less.* Sterna 285—287
bengalensis, *Cuv.* Sterna ... 298, 301
bergii, *Licht.* Sterna ... 283, 285, 287—289, 298, 299, 300*n*
bicalcaratum, *Lin.* Polyplectron 118
bicincta, *Jerd.* Osmotreron 163
bicolor, *Sykes.* Pratincola 194, 391, 406
bicornis, *Scop.* Meniceros 218
bicornis, *Lin.* Ocyceros... 85, 394
biddulphi, *Tick.* Chrysonotus 497
bifasciatus, *Shaw.* Cinnyris ... ... 269—271, 275
bimaculata, *Menetries.* Calandrella 236
bimaculata, *Menetries.* Melanocorypha ... 246, 329
bispecularis, *Vig* Garrulus 113
blakenstoni, *Swinh.* Anthus 345, 346
blanfordi, *Wald.* Drymoeca 57
blanfordi, *Jerd.* Ixos ... 141*n* 156
blewitti, *Hume.* Heteroglaux 411, 412
blythii, *Malh.* Micropternus 481
bonelli, *Vieill.* Phylloscopus 336
boschas, *Lin.* Anas ... 234
bottanensis, *Deless.* Pica 281
boulboul, *Lath.* Merula... 30
bouvieri, *Shelley.* Cinnyris 274
brachydactylla, *Tem.* Calandrella 230, 236
brachyotus, *Gm.* Otus ... 226
brachyotus, *Forst.* Otus ... 245
brachyurus, *Vieill.* Micropternus ... ... 472, 473, 477—481
brama, *Tem.* Athene ... 16
brama, *Tem.* Carine ... 114, 412
brasilianus, *Gm.* Cinnyris 271, 272 275, 277, 278
brasiliensis, *Spix.* Sula ... 318
brevicaudatus, *Blyth.* Turdinus 87, 251*n*, 253*n*, 342
brevirostris, *Vig.* Pericrocotus ... ... 29, 171, 174, 185—190, 196, 228
brooksi, *Hume.* Phylloscopus 134
brucei, *Hume.* Scops ... 245, 328
brunneopectus, *Tick.* Arboricola 45
brunnescens, *Jerd.* Acrocephalus 229
brunnicephalus, *Jerd.* Larus 235
brunniceps, *Tem. & S.* Salicaria 90
buchanani, *Blyth.* Franklinia 209
burkii, *Bart* Cryptolopha 113
burmanica, *Hume.* Estrelda 141*n*, 163
burmanica, *Hume.* Micropternus 473
burmanica, *Sharpe.* Pelargopsis 83

Cachinans *Jerd.* Trochalopteron 404
cærulea, *Raffl.* Pitta ... 114
cæsius, *Tick.* Parus ... 221
cafer, *Gm.* Picus ... 278
cafer, *Lin.* Promerops .. 272, 273
calidris, *Lin.* Totanus ... 233
caligata, *Licht.* Hippolais 134
caligatus, *Raffl.* Spizaetus 9
calvus, *Scops.* Otogyps ... 245, 328, 391
cambaiensis, *Lath.* Thamnobia 180
cambayensis, *Lath.* Perdicula 391
cambayensis, *Gm.* Turtur 391, 408
campestris, *Lin.* Agrodroma 230
cancha, *Hodgs.* Phænicornis 184
candida, *Briss.* Sula ... 312—314
canente, *Less.* Hemicircus 25, 26, 194, 503
canicapillus, *Blyth.* Yungipicus 25, 113
caniceps, *Blyth.* Lanius .. 400
caniceps, *Frank.* Megalaima 413
canorus, *Lin.* Cuculus ... 27, 96, 227, 414
cantatrix, *Tem.* Cyornis... 489
cantianus, *Lath.* Ægialitis 232, 236, 286, 287, 290
cantonensis, *Swinh.* Pericrocotus 176, 177*n*
capellanus, *Sclater.* Corvus 287*n*
capensis, *Gmel.* Cuculus 100
capensis, *Gm.* Hirundo ... 258, 259
capensis, *Licht.* Sula ... 305, 306
capensis, *P. L. Müll.* Trochilus 269
capistrata, *Hume.* Saxicola 246
capistrata, *Vig.* Sibia ... 113
caprata, *Lin.* Pratincola 194, 229
cara, *Hume.* Æthopyga ... 72, 113
carbo, *Lin.* Graculus ... 141*n*, 160, 225, 235
cardis, *Tem.* Turdulus ... 63
castanea, *Gould* Pucrasia 138, 139
castaneiceps, *Hodgs.* Minla 459
castaneonotus, *Swinh.* Hemixus 111
castanicauda, *Hume.* Siva 100, 113
castor, *Lin.* Mergus ... 291, 323, 329
caudata, *Dum.* Chatarrhæa 209, 337, 338, 405
cavatus, *Shaw.* Dichoceros 20, 85
cenchris, *Naum.* Tinnunculus 5
cerviniceps, *Gould.* Lyncornis 17, 454
ceylonensis, *Legge.* Baza ... 202
ceylonensis, *Sw.* Culicicapa 401
ceylonensis, *Gm.* Ketupa. 16, 245, 328, 392
ceylonensis, *Bp.* Oriolus 390, 406
chalcopogon, *Reichb.* Æthopyga 71*n*
chalybeus, *Lin.* Cinnyris 273
cheela, *Daud.* Spilornis .. 245, 328
chinensis, *Scop.* Garrulax 58
chinensis, *Gould.* Henicurus 249
chinquis, *Tem.* Polyplectron 40
chirurgus, *Scop.* Hydrophasianus 46
chlorigaster, *Blyth.* Crocopus 408
chlorocephalus, *Wald.* Phyllornis 35
chlorolophus, *Vieill.* Chrysophlegma 26
chloronotus, *Hodgs.* Phylloscopus 330, 331
chlorophanes, *Vieill.* Chrysophlegma 396
chloroptera, *Salvad.* Iora 426, 428*n*
chloropus, *Lin.* Gallinula 46, 165, 215, 224, 233
chloropygius, *Jard.* Cinnyris 273
christinæ, *Swinh.* Urodrepanis 70, 271
chrysea, *Wald* Abrornis 55
chrysea, *Hodgs.* Stachyris 113
chrysogenys, *Tem.* Arachnothera 487, 488
chrysomelas, *Severstov.* Phasianus ... ... 198—200
chrysonotus, *Less.* Brachypternus 201
chrysopterum, *Gould.* Trochalopteron 113
cinclorhynchus, *Vig.* Orocetes 228, 322, 329
cinclus, *Lin.* Tringa ... 233, 236
cinerea, *Blyth.* Chettusia 347
cinerea, *Gm.* Gallicrex ... 165

cinerea, *Bechst.* Grus ... 232
cinerea, *Blyth.* Muscitrea 101
cinerea, *Bp.* Sylvia ... 221, 229, 246, 328, 329
cinerea, *Gm.* Terekia ... 223, 224, 236
cinereoalba, *T. & S.* Alseonax 470
cinereus, *Meyer.* Anser ... 234
cinereus, *Lafr.* Pericrocotus 174, 175, 177
cingalensis, *Gm.* Motacilla 429*n*
cinnamomea, *Gm.* Ardetta 47, 168
cinnamomea, *Lin.* Pericrocotus 179, 181
cinnamomeoventris, *Blyth.* Sitta 113
circia, *Lin.* Querquedula 234
cirrhatus, *Gmel.* Spizaetus 125
cirtensis, *Lev.* Falco ... 67
cisticola, *Tem.* Sylvia ... 90
citreola, *Pall.* Budytes ... 37, 210, 230
citreoloides, *Hodgs.* Budytes 230
citrina, *Lath.* Geociehla 30, 151, 385
clypeata, *Lin.* Spatula ... 234
coccineus, *Gm.* Pericrocotus 179, 181, 182
cœrulescens, *Lin.* Buchanga 401
cœrulescens, *Lin.* Falco 126, 128
cœrulescens, *Lin.* Microhierax 80
colchicus, *Lin.* Phasianus 199
collaris, *Vieill.* Anthodiæta 269
collaris, *Wald.* Minla ... 113
collurio, *Penn.* Lanius ... 219, 220, 228
collybita, *Vieill.* Phylloscopus 336
columboides, *Jerd.* Palæornis 395
comatus, *Raffl.* Berenicornis 20*n*
communis, *Bon.* Coturnix 231
communis, *Gmel.* Falco... 128
concolor, *Sykes.* Cotyle ... 227
concolor, *Jerd.* Dicæum... 399
contra, *Lin.* Sturnopastor 38, 114
cordatus, *Jerd.* Hemicercus 25, 26, 194
cornix, *Lin.* Corvus ... 287
coromanda. *Lath.* Urrua 208, 217
coromandelica, *Gm.* Coturnix 231
coromandelicus, *Gm.* Cursorius 232, 247, 327, 329, 419
coromandelicus, *Lin.* Nettapus 47
coromandus, *Lath.* Bubo 412
coromandus, *Bodd.* Buphus 410
coronata, *Tick.* Dendrochelidon 393
coronata, *Müll.* Pitta ... 150, 219, 220, 228, 416, 457
coronata, *T. & S.* Reguloides 336
coronatus, *Bodd.* Buceros 122
coronatus, *Tick.* Dendrochelidon 503
coronatus, *Tem.* Henicurus 249
corrugatus, *Tem.* Craniorrhinus 60, 117, 118
coruscans, *Sharpe.* Neodrepanis 271
crassirostris, *Reich.* Arachnoraphis ... ... 70*n*.
crassirostris, *Reich.* Arachnothera 487
crawfurdi, *J. E. Gr.* Thriponax 114
crecca, *Lin.* Querquedula 47, 234
crepidatus, *Banks.* Stercorarius 294
crispifrons, *Bly.* Turdinus ... ... 87, 89, 251*n*, 253*n*.
cristata *Ray.* Fuligula 234
cristata, *Lin.* Galerida ... 230, 286, 287, 289
cristatus, *Lath.* Gallicrex 247, 329
cristatus, *Lin.* Lanius ... 20, 228
cristatus, *Lin.* Pavo ... 409
cristatus, *Lin.* Podiceps 224, 235
cristatus, *Gray.* Spizætus 124
cruentatus, *Rüpp.* Cinnyris 271
cruralis, *Bly.* Brachypteryx 403
cucullata, *Hartl.* Pitta ... 150, 457
cuculoides, *Vig.* Athene 16, 135
culminata, *Hay.* Volvocivora 495
culminatus, *Sykes.* Corvus 407, 461, 467
cuprea, *Jerd.* Carpophaga 418*n*
cuprecnitens, *Shelley.* Nectarinia 269, 272
curonicus, *Gm.* Ægialitis 232
curruca, *Gm.* Sylvia ... 230
currucaria, *Lin.* Certhia 270
cursitans, *Frankl.* Cisticola 90—95, 350

cyana, *Lin.* Cyanocincla 220, 228
cyanea, *Hume.* Muscitrea 101, 104
cyaneus, *Lin.* Petrocossyphus 203
cyanolæmus, *Jerd.* Cinnyris 274
cyanoplia, *Boie.* Cyornis 489
cyanops, *Sund.* Sula ... 285, 303, 305—307, 309, 310, 312, 319
cyanops, *Bp.* Sula ... 308
cyanotis, *Blyth.* Megalaima 27
cyanouroptera, *Hodgs.* Siva 104, 105, 113

Dabbii, *Verr.* Æthopyga ... 52, 72, 271, 272
dactylatra, *Less.* Sula ... 305, 307 308, 311
daflaensis, *God.-Aust.* Suthora 138
dalhousiæ, *Jameson.* Psarisomus 19
darwini, *Hume.* Turdinus 90
dauma, *Lath.* Oreocincla 122
daurica, *Lin.* Lillia ... 254, 256, 261
davisioni, *Hume.* Hemixus 111, 113
davisoni, *Hume.* Inocotis 168
davisoni, *Hume.* Leioptila 110, 113
davisoni, *Hume.* Megalaima 108, 109, 113, 114
davisoni, *Hume.* Pitta ... 114
davisoni, *Hume.* Turdulus 63, 136
delesserti, *Malh.* Chrysocolaptes 26, 396
deserti, *Rüpp.* Saxicola 229
desertorum, *Daud.* Buteo 65,—67
desertorum, *Stanley.* Certhilauda 287, 290
diana. *Less.* Ajax ... 104
dilutior, *Sharpe.* Arachnothera 274
discolor, *Bly.* Certhia ... 74, 76, 79
domicella, *Finsch. Hartl.* Lillia 254, 260, 265
dougalli, *Montague.* Sterna 327, 329
dubius, *Hume.* Minla ... 113
dubius, *Hume.* Proparus 459
duivenbodei, *Schl.* Eudrepanis 70, 71a
dukhunensis, *Sykes.* Motacilla 221, 230, 472

dumetorum, *Bly.* Acrocephalus 229, 246, 329
dussumieri, *Hartl.* Cinnyris 273
duvaucelii, *Tem.* Pucrasia 138

Earlei, *Bly.* Chatarrhæa ... 34, 156, 247, 329
eclipes, *Hume.* Chatarrhæa 337
egertoni, *Gould.* Actinodura 113, 342
egretta, *Gm.* Herodias ... 347
elegans, *Vieill.* Cinnyris 271
elegans, *Tem.* Cyornis ... 489
elegans, *McClell.* Pericrocotus ... ... 29, 171, 175, 191—195, 197
elphinstonei, *Sykes.* Palumbus 408, 418
emeria, *Shaw.* Otocompsa 35, 157
enca, *Hersf.* Corvus ... 468
episcopus, *Bodd.* Melanopelargus 420
epops. *Lin.* Upupa ... 29, 228, 399
erochrous, *Hodgs.* Phylloscopus (Reguloides) ... 331
erythaca, *Bly. & Jerd.* Siphia 137
erythrinus, *Pall.* Carpodacus 230
erythrocephala, *Jerd.* Cisticola 90, 94, 95. 351, 406
erythropleura, *Wald.* Suya 58
erythroptera, *Jerd.* Mirafra 209, 246, 329
erythropterus, *Vig.* Pteruthius 113, 114
erythropygia, *Sykes* { Hirundo / Lillia 226, 254, 255, 260, 263, 265
erythropygius, *Jerd.* Pericrocotus 174, 177, 178
erythrorhyncha, *Lath.* Dicæum 399
erythrorhyncha, *Sykes.* Perdicula 391, 409
erythrorhyncha, *Less.* Sula 312, 314
eupatria, *Lin.* Palæornis ... 21, 227
eugenei, *Hume.* Myiophoneus 30, 113
eurycercus, *Hay.* Centropus 27, 28
eutolmos, *Hodgs.* Microhierax 80, 126, 127

eximia, *Horsf.* Æthopyga 71
extensicauda, *Swinh.* Drymocca 159
exul, *Wall.* Pericrocotus ... 192, 196, 198

Fairbanki, *Blanf.* Trochalopteron 391, 404, 410
familiaris, *Meuetries.* Ædon 229, 246, 328, 329
familiaris, *Lin.* Certhea ... 74, 78
famosa, *Lin.* Nectarinia .. 269
fantensis, *Sharpe.* Nectarinia 271
fasciata, *Jerd.* & *Fraser.* Nectarinia ... 272
fasciatus, *Gmel.* Harpactes 122, 309, 393, 413
fasciatus, *Scop.* Pterocles 231
ferina, *Lin.* Aythya ... 234
ferox, *Gm.* Buteo ... 226, 348
ferrea, *Hodgs.* Pratincola ... 36, 133*n*
ferrugineus, *Gm.* Gallus ... 44, 164
ferruginosus, *Bly.* Pomatorhinus 313
fiber, *Lin.* Sula ... 318, 319, 321,
fimbriata, *Tem.* Volvocivora 205, 207 495
finschi, *Hume.* Palæornis 113
flagrans, *Oustaleb.* Æthopyga 70

flagrans, *Boie.* Pericrocotus ... 171, 172, 184, 196
flammaxillaris, *Blyth.* Arachnechthra ...141*n*, 148
flammaxillaris, *Blyth.* Cinnyris 274
flammaxilliaris, *Blyth.* Cyrtostomus ... 70
flammea, *Gm.* Muscicapa ... 172
flammea, *Lin.* Strix ... 142
flammeus, *Forst.* Pericrocotus ... 171, 173, 175, 186, 189, 190, 192, 195—198, 391, 400
flammifer, *Hume.* Pericrocotus 173, 175, 192, 195, 196
flava, *Lin.* Budytes ... 210, 230
flavala, *Hodgs.* Hemixus ...111—113
flaveolus, *Gould.* Criniger... 34, 113
flavicollis, *Lath.* Ardetta ... 47, 410
flavicollis, *Lath.* Ardeiralla ... 167
flavicollis, *Frankl.* Gymnoris ... ... 247, 329, ... 408
flavicollis, *Hodgs.* Ixulus... 107

flavigaster, *Eyton.* Arachnothera 487, 488
flavigastra, *Gould.* Nectarinia 274
flavimucha, *Gould.* Chrysophlegma 26
flavipes, *Savign.* Chettusia 232
flavipes, *Hodgs.* Ketupa ... 135
flavirostris, *Gould.* Paradoxornis 30
flavirostris, *Brandt.* Phæton 498
flavirostris, *Gould.* Sula ... 318
flaviscapis, *Tem.* Pteruthius 114
flaviventris, *Reich.* Arachnoraphis 70*n*
flaviventris, *Scop.* Cuculus 97
flaviventris, *Deless.* Prinia 153, 158
flaviventris, *Tick.* Rubigula 34, 417
flavogularis, *Bly.* Pericrocotus 186
flavo-olivaceus, *Hume.* Phylloscopus (Reguloides) 504
flavostriata, *Wall.* Æthopyga 71*n*, 72
flavus, *Lin.* Budytes ... 246, 329
fluviatilis, *Naum.* Sterna ... 485
fluvicola, *Jerd.* Lageneplastes 217
fokiensis *Swinh.* Microptenus 479, 481
formosus, *Wald.* Troglodytes 238
franklini, *Blyth.* Megalaima 80, 109, 113
fraterculus, *Swinh.* Pericrocotus 195
frenatus, *S. Müll.* Cinnyris 274
frenatus, *Müll.* Cyrtostomus 70
fringillarius, *Drap.* Microhierax 80, 126
frontalis, *Blyth.* Callene 104, 403*n*
frontalis, *Horsf.* Dendrophila 399
frontalis, *Bly.* Henicurus 248
fugax, *Horsf.* Cuculus ... 96
fugax *Horsf.* Hierococcyx 490, 491
fulica, *Less.* Sula ... 318
fulicata, *Lath.* Thamnobia 180, 406
fuliginosa, *Vig.* Rhyacornis 37
fulva, *Gm.* Dendrocygna ... 329
fulvescens, *Hume.* Gyps ... 123
fulviventer, *God.-Aust.* Reguloides 56

fulvus, *Gm.* Charadrius 232, 247, ... 419
fulvus, *Wald.* Drymocatophus 59
fulvus, *Jerd.* Gyps ... 123
fulvus, *Gmel.* Gyps ... 217
fusca, *God.-Aust.* Alcippe 54
fusca, *Hodgs.* Drymœca ... 57
fusca, *Briss.* Sula ... 318 319
fusca, *Vieill.* Sula ... 321
fuscicaudata, *Gould.* Otocompsa 405
fuscicollis, *Steph.* Graculus 170
fuscus, *Wagler.* Aeridotheres 38, 160
fuscus, *Vieill.* Artamus 30, 383, 390, 401
fuscus, *Vieill.* Cinnyris ... 273
fuscus, *Lin.* Totanus ... 233
fytchii, *Anderson.* Bambusicola 493, 494

GALERITUS, *Tem.* Anorhinus 117
gallicus, *Gm.* Circætus ... 217
gallicus, *Gm.* Cursorius 232
gallinula, *Lin.* Gallinago 232, 410
gangetica, *Jerd.* Suya ... 138
garrula, *Lin.* Coracias ... 502
garzetta, *Lin.* Herodias ... 46
gaetkei, *Seebohm.* Phylloscopus 336
geoffroyi, *Wagler.* Cirrepedesmus 232, 236
germaini, *Elliot.* Polyplectron 118, 119
ginginianus, *Lath.* Neophron 392
glareola, *Gm.* Actitis ... 233
glareola, *Lin.* Rhyacophilus 46
glareola, *Gmel.* Totanus 329
glottis, *Lin.* Totanus ... 233
gouldiæ, *Vig.* Æthopyga ... 72
gouldi, *Hume.* Sterna ... 326
govinda, *Sykes.* Milvus ... 142, 392, ... 412, 453
gracilis, *Rüpp.* Burnesia ... 496
gracilis, *Tem.* Craniorhinus 118
grandis, *Blyth.* Niltava ... 103
grantia, *McClell.* Gecinulus 26, 113
grayi, *Sykes.* Ardeola ... 47, 167, 410
gregaria, *Pall.* Chettusia 232
gregoriana, *Nevil.* Oreocincla 202
grisea, *Scop.* Pyrrhulauda 327, 408
griseicapilla, *Wald.* Carpophaga 113, 460
griseiceps, *Hume.* Criniger 34, 113
griseigularis, *Hume.* Pycnorhis 116, 251
griseogularis, *Gould.* Pericrocotus 187
griseogularis, *Hume.* Pycnorhis ... ... 329*n*.
griseus, *Lin.* Nycticorax 168
griseus, *Jerd.* Scops .. 135
griseus, *Lath.* Tockus ... 395
grisola, *Lin.* Butalis ... 220, 228, 329, 495
grisola, *Blyth.* Hyloterpe 102
grisola, *Blyth.* Tephrodornis 102
gularis, *Blyth.* Anthipes 106
gularis, *Bosc.* Demi-egretta 224
gularis, *Jerd.* Micropternus ... 477, 479, 481
gularis, *Gould* Rubigula 405
gulgula, *Frankl.* Alauda... 163, 247, 329
gurial, *Pears.* Pelargopsis 18, 394
gurneyi, *Hume.* Pitta ... 491
gurneyi, Promerops 273
guttata, *Vig.* Ceryle ... 19
guttatus, *Tick.* Stachyris 251
guttatus, *Blyth.* Turdinus 87
guttatus, *Tick.* Turdinus 251, 253, 342
gutturalis, *Lin.* Cinnyris 271
gutturalis, *Scop.* Hirundo 17
gymnopthalmus, *Bly.* Yungipicus 390, 396

HÆMACEPHALA, *Müll.*-Megalæma (Xantholæma) 144, 245 329, 397
hæmorrhous, *Gm.* Molpastes 405
haliætus, *Lin.* Pandion ... 10, 208, 226
hasseltii, *Tem* Cinnyris ... 275
hasseltii, *Tem.* Nectarinia 271
helvetica, *Lin.* Squatarola 222, 232, 236
hemidactylus, *Natt.* Micropternus ... 481
hemprichii, *Bonap.* Larus 285, 287—289, 296-300*n*,
hemprichii, *Ehrenb.* Pratincola 244
hendersoni, *Hume.* Falco 48, 49
hendersoni, *Cass.* Locustella 134, 229
hildebrandi, *Hume.* Hemixus 111, 113

himalayana, *Vig.* Certhia 73, 75, 76, 78, 79
himalayanus, *Vig.* Cuculus 483
himalayensis, *Blyth.* Dendrocitta, ... 38, 117
himalayensis, *Hume.* Gyps 123
hirundo, *Tem.* Sterna ... 485
hodgsoni, *Brooks.* Certhia 73, 74, 78, 79
hodgsoni, *Gould.* Harpactes 18, 82
hodgsoni, *Bp.* Megalaima 27
hodgsoni, *Gray.* Motacilla 472
hodgsoni, *Verr.* Siphia ... 137
hodgsoni, *Jerd.* Thriponax 114
holroydi, *Swinh.* Microperuus 479, 481
homalaura, *Bly.* Cisticola ... 90, 93, 94, 350, 351
honorata, *Lin.* Eudynamys 228, 397
hopkinsoni, *God.-Aust.* Bambusicola ... 493, 494
horsfieldi, *Bly.* Æthopyga 73
horsfieldii, *G. R. Gr.* Euplocamus 42
horsfieldi, *Vig.* Myiopho-... neus 122, 391, 403
horsfieldi, *Jerd.* Polioætus 130
horsfieldii, *Sykes.* Pomatorhinus 404
hueti, *David.* Alcippe ... 54, 55
humei, *Mandelli.* Heterorhynchus ... ... 251 *n.*
humilis, *Hume.* Ixulus ...106, 108, 113
humilis, *Mull. & Schl.* Polioætus 129*n.*, 130
huttoni, Chatarrhæa ... 337, 338
huttoni, *Bly.* Emberiza ... 221, 23 ', 246, 329
hyacinthina, Cyornis ... 339
hyperboreus, *Lin.* Lobipes 285, 286, 290
hyperythra, Brachypteryx 499
hyperythra, *Layard.* Cecropis 254, 266, 267
hyperythra, *Cab.* Erythrosterna 471
hyperythrus, *Gould.* Hierococyx 97, 99
hypodila, *Jard.* Anthrodiæta 269
hypodilus, *Jard.* nectariuia 269
hypogrammica, *S. Mull.* Anthreptes 70, 272—274
hypoleucos, *Lin.* Actitis ... 233
hypoleucus, *Blyth.* Pomatorhinus 31, 32

Ictericus, *Strickl.* Criniger... 391, 405
icthyætus, *Horsf.* Falco ... 130
icthyætus, *Horsf.* Polioætus 10, 11 129
igneus, *Gm.* Falcinellus ... 233
igneus, *Bly.* Pericrocotus 171, 172, 175, 184, 189, 190, 191, 196, 198
ignicauda, *Hodgs.* Æthopyga 72
ignitus, *Vieill* Euplocamus 119, 120
ignitus, *Vieill* Gallus ... 119
ignitus, *Lath.* Phasianus ... 119
ignotum. *Hume.* Pellorneum 334
immaculatus, *Hodgs.* Hemicurus 37
immodestus, *Hume.* Pericrocotus 174, 177
incognita, *Hume.* Baza ... 202 *n.*
indica, *Hume.* Chætura ... 17
indica, *Lin.* Chalcophaps ... 40, 409, 455
indica, *Lin.* Coracias ... 18, 83, 180, 394, 502
indica, *Steph.* Hydrochelidon 235
indica, *Hodgs.* Lophospiza 8
indica, *Gm.* Otus ... 135
indica, *Lath.* Parra ... 46, 165
indica, *Blyth.* Pratincola ... 36, 131, 132, 229, 241, 242, 244
indicus, *Lath.* Caprimulgus 17, 218, 227
indicus, *Lin.* Chalcophaps 503
indicus *Lin.* Coracias ... 227
indicus, *Scop.* Gyps ... 392
indicus, *Bodd.* Lobivanellus 45, 286
indicus, *Hodgs.* Lophospiza 502
indicus, *Lath.* Metopodius 212
indicus, *Jerd.* Oriolus ... 113
indicus, *J. & S.* Passer ... 163, 408
indicus, *Sparrm.* Pericrocotus 179, 182
indicus, *Hume.* Phæton ... 285, 302—304, 498
indicus, *Jerd.* Phylloscopus 221, 229
indicus, *Hodgs.* Spizaetus 124
indicus, *Tem.* Vultur ... 123
indus, *Bodd.* Haliastur ... 15, 142, 392
inglisi, *Hume.* Munia ... 39
inglisi, *Hume.* Pomatorhinus ... ... 31—33
inglisi, *Hume.* Tinunculus 5
innominata, *Hume.* Ninox 16, 17
innominata, *Burt.* Vivia 351

innotata, *Blyth.* Jora ... 423, 424
inornata, *Sykes.* Drymoica 390, 406
inornatus, *Sykes.* Drymoipus 92
insignis, *Jerd.* Calcostetha 70
insignis, *Hodgs.* Carpophaga 113, 418
insignis, *Elliot.* Phasianus ... ... 139, 198—200
insignis, *Hodgs.* Pratincola 131*n.*, 132, 496
insolens, *Hume.* Corvus ... 141*n.*, 159
intensior, *Hume.* Pericrocotus 185
intermedia, *Blyth.* Buchanga 141*n*, 149
intermedia, *Strickl.* Columba 408
intermedia, *Hay.* Eulabes 38, 86, 417
intermedia, *Hume.* Lillia 263, 265
intermedia, *Blyth.* Tiga ... 497
intermedia, *Hume.* Volvocivora 205
intermedius *Hume.* Allotrius ... ...112—115
intermedius, *Legge.* Brachypternus ... 201
intermedius, *Hume.* Centropus 28, 141*n.*, 145
intermedius, *Adams.* Corvus 461, 462
intermedius, *Butler.* Francolinus 211
intermedius, *Hasselt.* Herodias 46
intermedius, *Blyth.* Himantopus 233
intermedius, *Hay.* Molpastes 35
intermedius, *Hume.* Polyplectron 118
intermedius, *Hay.* Pycnonotus 157
interpres, *Lin.* Strepsilas 236, 287
iora, *Sharpe.* Phœnicomanes 423
isabellina, *Rüpp.* Saxicola 229
ispida, *Lin.* Alcedo ... 208, 227

Jacobinus, *Bodd.* Coccystes 27, 227, 228, 327
japonica, *T. and S.* Lillia 254, 260, 261, 266
japonicus, *Schl.* Buteo ... 348
jardinei, *Verr.* Cinnyris 271
javanensis, *Osbeck.* Eulabes 86
javanensis, *Less.* Ploceella 160
javanica, *Sparrm.* Hirundo 391, 392
javanica, *Horsf.* Sterna... 169
javanica, *Gm.* Strix ... 16, 142*n.*
javanicus, *Horsf.* Butorides 47
javanicus, *Osbeck.* Eulabes ... ... 38*n.*
javanicus, *Horsf.* Eurylaimus 456
javanus, *Cuv.* Eulabes ... 38, 86, 457
jerdoni, *Finsch.* Agrodroma 230
jerdoni, *Bly.* Machlolophus 407
jerdoni, *Malh.* Micropternus 481
jerdoni, *Blyth.* Phyllornis 406
jerdoni, *Blyth.* Trochalopteron 404
johannæ, *Verr.* Cinnyris 272
joudera, *Hodgs.* Turnix 231, 329
jugger, *Gray.* Falco ... 50*n.*
jugularis, *Lin.* Cinnyris ... 70; Cyrtostomus 274

Kesslери, *Prizeralski.* Merula 484
ketupa, *Kaup.* Bubo ... 135
khasiana, *God.-Aust.* Suya 59
kienerii. *Gerv.* Spizaetus 9, 483
kingi, *Hume.* Saxicola ... 229
kundoo, *Sykes.* Oriolus... 219

Lactea, *Tem.* Glareola ... 164
lafreysnayii, *Hartl.* Iora 423, 426, 440
lahtora, *Sykes.* Lanius ... 286
lambruschni, *Bp.* Larus 286
lanceolatus, *Vig.* Garrulus 85
lanceolatus, *Tem.* Spizaetus 125
latirostris, *Raffl.* Alsconax 401, 470
lefevrii, *Baldamus.* Sula 305, 306
lepida, *Blyth.* Burnesia 496
leschenaulti, *Vieill.* Henicurus 248, 249
leschenaulti. *Vieill.* Merops 394
leschenaultii, *Less.* Taccocua 218, 219
lettia, *Hodgs.* Scop ... 16
leucocapillus, *Gould.* Anous 138, 302

leucocephalus, *Gm.* Tantalus 420
leucogaster, *Gm.* Haliætus 286*n.*
leucogaster, *Gould.* Pomatorhinus 113, 137
leucogastra, *Bly.* Munia 460
leucogastra, *Bodd.* Sula 321
leucolophus, *Hardw.* Garrulax 113
leucomelanura, *Hodgs.* Siphia 471
leucophæa, *Steph.* Sula ... 317
leucoptera, *Gould.* Pica 281
leucoptera, *Vieill.* Sylvia 420—422
leucoryphus, *Pall.* Haliætus 142
leucotis, *Hume.* Garrulus 113
leucura, *Gm.* Erythrosterna 471, 484
leucura, *Hodgs.* Myiomela 103
leucura, *Blyth.* Pratincola 241
levaillanti, *Less.* Corvus ... 461, 462, 467, 468
limnaetus, *Horsf.* Spizaetus 125
lineatus, *Lath.* Euplocamus 42
lineatus, *Lath.* Gennæus 164
lineatus, *Cuv.* Numenius 233, 236
liventer, *Tem.* Butastur ... 142
lodoisiæ, *Salvad.* Æthopyga ... ... 71*n.*
longicaudatus, *Tick.* Drymoipus 92, 236
longirostra, *Lath.* Arachnothera 397, 488
longirostris, *Hume.* Pelecanus 491, 492
longirostris, *Hodgs.* Pycnorhis 250
longirostris, *Jerd.* Upupa 28, 149
lophotes, *Cuv.* Baza ... 15, 203
lotennius, *Lin.* Cinnyris ... 70, 399
luctuosus, *De Fil.* Pericrocotus 175
ludovicensis, *Bocage.* Nectarinia 273
lugubris, *Tick.* Ninox ... 17, 413
lugubris, *Sund.* Volvocivora 205
lunatus, *Gould.* Serilophus 455
lunulatus, *Valenc.* Galloperdix 418
luteola, *Sparrm.* Euspiza 230, 246, 322, 329
luscinia, *S. Müll.* Hylocaris 103
luteolus, *Less.* Ixos ... 405, 417
luzoniensis, *Scop.* Motacilla 384, 472

MACEI, *Less.* Graucalus ... 29, 400
macei, *Vieill.* Picus ... 113
macqueenii, *Gray.* Houbara 231, 286
macrodactylum, *Strickl.* Malacopteron ... 87
macrodactylus, *Strickl.* Turdinus ... ... 87, 253*n.*
macrolopha, *Less.* Pucrasia 139
macrorhyncha, *Stol.* Pratincola 131, 132, 209, 241, 244
macrorhynchus, *Wagler.* Corvus 461, 467, 468
macrorhynchus, *Gm.* Cymborhynchus ... 457
macrourus, *Gm.* Cercotrichas 36, 157, 406
macrurus, *S. G. Gm.* Circus 11
macularia *Bly.* Anthreptes 274
maculata, *Tick.* Erythrosterna 471
maculatus, *Hodgs.* { Anthus 417 / Pipastes 230 }
maderaspatana, *Briss* Motacilla 472
magna, *Hodgs.* Arachnothera 113, 385
magna, *W. Ramsay.* Stitta 343
magnifica, *Sharpe.* Æthopyga 72, 274
magnirostris, *Wald.* Alcippe... ... ... 56, 60
magnirostris, *Blyth.* Cyornis 338, 339, 489
magnirostris, *Geoffr.* Esacus 121
magnirostris, *Ball.* Palæornis 21, 143
magnirostris, *Bly.* Urocissa 113
maharattensis, *Lath.* Picus 245, 320, 390, 395
major, *Jerd.* Dendrocygna 247, 328, 329, 382
major, *Briss.* Eulabes ... 38*n.*
major, *Hume.* Milvus ... 412
majoroides, *Hodgs.* Picus 53, 54
malabarica, *Bodd.* Lobipluvia 232, 329
malabarica, *Jerd.* Osmotreron 408
malabaricum, *Bly.* Glaucidium 201
malabaricus, *Scop.* Dissemurus 401

malabaricus, *Jerd.* Malaco-circus 390, 405
malabaricus, *Gm.* Pericro-cotus 179. 182
malabaricus, *Jerd* Scops 135
malabaricus, *Gm.* Temenu-chus 38, 230
malabaroides, *Hodgs.* Dis-semurus 29
malaccensis, *Scop.* Anthrep-tes 70
malayensis, *Reinw.* Neopus 392
malcolmi, *Sykes.* Malacocir-cus 416
mandelli, *Brooks.* Certhia 77, 78
mandelli, *Hume.* Cyornis 339, 489
mandellii, *Blanf.* Pellor-neum 113, 340, 341
manderinus, *Gould.* var. ap. *G.-Aust* Picus ... 53
manyar, *Horsf.* Ploceus 61, 160, 210, 211, 221, 323
mariæ, *Wald.* Pomatorhinus 136
mariquensis, *Smith.* Cinny-ris 271
marshallorum, *Swinh.* Mega-laima 80
maruetta, *Briss.* Porzana 215, 233
maximus, *Hume.* Centro-pus 28
macclellandi, *Horsf.* Hyp-sipetes 113
media, *Horsf.* Sterna 301
meena, *Sykes.* Turtur... 40
melaceps, *Sw.* Iora ... 429, 433
melanauchen, *Cab.* Pyrr-hulauda 327
melanauchen, *Tem.* Sterna 325
melanictera, *Gm.* Motacilla 429*n*
melanictera, *Gm.* Muscicapa 429*n*
melanictera, *Gm.* Rubigula 429*n*
melanocephala, *Licht.* Bu-dytes 210, 230
melanocephala, *Anders.* Cis-ticola 90, 93, 140, 350, 351
melanocephala, *Gmel.* Eus-piza 61, 62, 230, 247, 329
melanocephalus, *Licht.* Budytes 246
melanocephalus, *Lin.* Orio-lus 35, 406
melanocrissa, *Rüpp.* Lillia 254, 258, 260
melanocrissa, *Hartl.* Lillia 265
melanogaster, *Penn.* Plotus 170
melanogenys, *G. R. Gr. & M.* Anous 138
melanogenys, *Gould.* Falco 501*a*
melanoleuca, *Tick.* Sibia ... 113, 458
melanoleucus, *Gm.* Circus 11
melanoleucus, *Bly.* Micro-hierax 126, 127
melanops, *Vig.* Stoporala ... 228
melanops, *Hartl. & Hevgl.* Sula ... .. 307—311
melanoptera, *Blyth.* Volvo-civora 203
melanopterus, *Daud.* Ela-nus 16
melanorhynchus, *Wagler.* Palæornis 21, 22
melanoschistus, *Hume.* Ac-cipiter 482
melanostigma, *Bly.* Trocha-lopteron 113
melanotis, *Bly.* Allotrius ... 112, 113
melanotis, *T. & S.* Milvus 412
melanotis, *Jerd.* Spilornis 392
melanotus, *Bly.* Euplocа-mus 42
melanoxantha, *Hodgs.* Pa-chyglossa 348, 349
melanura, *Tem.* Sula ... 306
melanura, *Hartl.* Valvoci-vora 206
melanurus, *Bly.* Pomator-hinus 202
melaschistus, *Hodgs.* Vol-vocivora 29, 203, 204, 206
melba, *Lin.* Cypselus ... 218, 227, 245, 328
meliceps, *Horsf.* Iora ... 429
meningting, *Horsf.* Alcedo 141*n*, 143
microptera, *Hume.* Mirafra 163
micropterus, *Gould.* Cucu-lus 96, 386, 483, 484
microrhynchus, *Shelley.* Cinnyris 269
miles, *Hodgs.* Æthopyga ... 28, 72, 113, 122, 123
milvipes, *Hodgs.* Falco ... 48
miniata, *Tem.* Pericrocotus 192
minima, *Sykes.* Leptocoma 390
minimus, *Sykes.* Cinnyris 398
minor, *Hume.* Pellorneum 113, 154, 341
minor, *G. St. Hil.* Phœni-copterus 234
minor, *Gm.* Podiceps ... 47, 410, 486, 487
minor, *Hume.* Sturnus ... 246, 328
minor, *Hume.* Trichastoma 59
minuta, *Lin.* Sterna ... 286, 298, 302, 304, 324—326

minuta, *Leisl.* Tringa ... 233, 236 344,
minutus, *Pall.* Ægialitis ... 212
minutus, *Tem.* Pericrocotus 171, 190, 191, 196
modesta, *Eyton.* Arachnothera 488
modestus, *Strickl.* Pericrocotus 175, 177
modestus, *Gould.* Regulus 330
moluccensis, *Müll* Pitta ... 149, 457
monachus, *Lin.* Vultur ... 226, 245, 328
mongolicus, *Pall.* Cirripedesmus 232, 236
mongolicus, *Brandt.* Phasianus 199
moniliger, *Hodgs.* Anthipes 105, 106, 113
moniliger, *Hodgs.* Garrulax 34, 156
montanus, *Lin* Passer ... 163
montanus, *Blyth.* Pipastes 391, 407
monticolus, *Frankl.* Caprimulgus 17, 227, 453
morio, *Ehr.* Saxicola ... 246, 329
morrisonia, *Swinh.* Alcippe 55
motacilloides, *Swinh.* Pericrocotus 175
multicolor, *Gm.* Fringilla 432
multicolor, *Gm.* Iora ... 421, 429, 432, 436
multimaculata, *Jerd.* Nucifraga 122
multipunctata, *Gould.* Nucifraga 122
munipurensis, *God-Aust.* Cisticola ...90, 92, 93*n*
munipurensis, *God-Aust.* Suthora 138
muraria, *Lin.* Tichodroma 122
musicus, *Raffl.* Copsychus 35
musicus, *Wagler.* Eulabes 38, 86
mysticalis, *Tem.* Æthopyga 71*n*
mysticalis, *S. Müll.* Æthopyga 72

NANUS, *Hume.* Hierococcyx 490
nanus, *Blyth.* Ichthyætus 130
nanus, *Tick.* Pycnonotus... 107
neglecta, *Wald.* Sitta ... 113
neglecta, *Hume.* Volvocivora 203, 205, 207
neglectus, *Brooks.* Anthus 345, 346
neglectus, *Hume.* Pericrocotus 171, 175, 189, 190, 16
nereis, *Gould.* Sterna ... 325
neumayeri, *Mich.* Sitta 350
newarensis, *Hodgs.* Bulaca 483
nicobarica, *Hume.* Æthopyga 72
nigerrima, *Gould.* Hypsipetes 109
nigra, *Lin.* Ciconia ... 233
nigra, *Lin.* Melanopelargus 420
nigriceps, *Frankl.* Collyrio 383
nigriceps, *Frankl.* Lanius... 29
nigriceps, *Hodgs.* Stachyris 152, 252
nigripennis, *Gould* Upupa 399
nigripes, *Tem.* Herodias ... 46
nigrirostris, *Hodgs.* Palæornis 22
nigrodactyla, *Less* Sula ... 312
nigrolutea, *Marshall.* Iora 134, 220, 423, 437—439, 441, 442
nigropileus, *Lafr.* Merula 228
nigrorufa, *Jerd.* Ochromela 391, 401
nilgheriensis, *Jerd.* Hypsipetes 109
nilotica, *Hasselq.* Sterna ... 235
nipalensis, *Hodgs.* Aceros 85
nipalensis, *Hodgs.* Æthopyga 73
nipalensis, *Hodgs.* Alcippe 55, 56, 113
nipalensis, *Hodgs.* Certhia 74—78
nipalensis, *Hodgs.* Hydrornis 113
nipalensis, *Hodgs.* Lillia ... 261—263, 265
nipalensis, *Hodgs.* Palæornis 21, 141*n* 143*n*
nipalensis, *Hodgs.* Pellorneum 113, 340, 341*n*
nipalensis, *Gould.* Pucrasia 139
nipalensis, *Hodgs.* Spizætus 125, 503
nisicolor, *Hodgs.* Hierococcyx 96, 97, 347
nisoria, *Tem.* Munia ... 39
nisus, *Lin.* Accipiter ... 226, 247, 482
nitens, *Hume.* Sturnus ... 238, 239
nitidus, *Lath.* Phylloscopus 246, 329
notatus, *P. L. Müll.* Cinnyris 272
nuchalis, *Blyth.* Anthreptes 274

nuchalis, *God-Aust.* Garrulax 58
nuchalis, *Jerd.* Parus ... 221
nyroca, *Güld.* Aythya ... 234

Oastesi, *Hume.* Hydrornis .. 113
obscuriora, *Hume.* Hypotænidia 166
obscurus, *Jard.* Anthreptes... 272
obscurus, *Gm.* Anthus ... 346
obscurus, *Gould.* Puffinus 292
obscurus, *Tem.* Puffinus.... 293, 294
obscurus, *Gmel.* Rhyticeros 85
occipitalis, *Vig.* Gecinus ... 26
occipitalis, *Hodgs.* Ixulus 107
occipitalis, *Blyth.* Urocissa 113
oceanica, *Banks.* Oceanites 291
ocellatum, *Less.* Syrnium 208
ochraceiceps, *Wald.* Pomatorhinus ... 343
ochropus, *Lin.* Actitis ... 233
oglei, *God-Aust.* Actinura 341, 342
olivacea *Hume.* Cyornis ... 338, 489
olivaceus, *Smith.* Cinnyris 272
olivaceus, *Bly.* Pomatorhinus 113, 137, 458
onocrotalus, *Lin.* Pelicanus 235, 491, 493
opistholeuca, *Strickl.* Saxicola 220, 246, 329
oreskios, *Tem.* Harpactes 50, 51, 82, 454
orientalis, *Lin.* Eurystomus 18, 83
orientalis, *Gm.* Falco ... 128
orientalis, *Tem. & Schl.* Spizaetus 125
orphea, *Tem.* Sylvia ... 229
osea, *Bp.* Cinnyris ... 70, 275
osiris, *Finch.* Cinnyris ... 270
ostralegus, *Lin.* Hæmatopus 212, 232, 236

Pagodarum, *Gm.* Sturnia ... 407
pallescens, *Hume.* Gyps ... 226
pallidipes, *Blanf.* Horeites 57*n*
pallidipes, *Blanf.* Phylloscopus 336
pallipes, *Jerd.* Cyornis ... 489
palpebrosa, *Tem.* Zosterops 407
palustre, *Jerd.* Pellorneum 341*n*
palustris, *Horsf.* Megalurus 154, 156
papillosus, *Tem.* Inocotis... 168
paradisi, *Lin.* Muscepeta... 401
paradisi, *Lin.* Tchitrea ... 415
paradoxus, *Pall.* Syrrhaptes 50
parva. *Bechst.* Erythrosterna ... 220, 228, 471, 484
parva, *Gm* Sula 305, 307, 321
passerinus, *Vahl* Ololygon 227, 414
pastor, *Cuv.* Pratincola ... 131
pectoralis, *Horsf.* Cinnyris 274
pectoralis, *Horsf.* Cyrtostomus 71
pectoralis, *Gould.* Garrulax 34, 156
pectoralis, *Cab.* Hierococcyx 97, 99
pectoralis, *Legge.* Oreocincla 202
pectoralis, *God.-Aust.* Pellorneum ... 340, 341
pekinensis, *Swinh.* Tinnunculus 5, 6
pelagica, *Lin.* Thalassidroma 291
pella, *P. L. S. Müll.* Trochilus 269
penelope, *Lin.* Mareca ... 234
pennatus, *Gm.* Nisaetus ... 203
pennatus, *Hodgs.* Scops ... 201*n*
peregrinator, *Sund.* Falco... 128, 500, 502*n*
peregrinus, *Lin.* Falco ... 128, 226, 501, 503
peregrinus, *Lin.* Pericrocotus 171, 172, 174, 179—182, 184, 185, 190, 191, 401, 415
persicus, *Hume.* Puffinus ... 285, 286 292, 293, 304
personata, *Gould.* Motacilla 246, 329, 472
personata, *Gould.* Sula ... 307, 308, 310, 312
phacopus, *Malh.* Micropternus 481
phœnicotis, *Tem.* Chalcoparia 141*n* 142*n*, 147
phœopus, *Lin.* Numenius ... 233, 236, 247, 329
phœnicura, *Frankl.* Ammomanes 230
phœnicura, *Penn.* Erythra 46, 165
phœnicura, *Penn* Gallinula 224
phœothorax, *Hartl.* Anthodiæta 270
phaioceps, *Bly.* Micropternus 473, 477, 481
phaiopicus, *Malh.* Micropternus 481

CONTENTS OF VOL. V.

1877.

No. 1.—*April.*

	Page.
A First List of the Birds of North-Eastern Cachar ...	1
Observations on Falco Hendersoni, *Hume*, by W. E. Brooks	48
A Note on the Nidification of Harpactes oreskios, by C. T. Bingham	50
Novelties—	
Æthopyga, Waldeni	51
Recently-described Species, Republications—	
Picus manderinus, *Gould*, Var. *God.-Aust.* ...	53
Alcippe fusca, *God.-Aust.*	54
Niornis albiventris, „	55
Abrornis chrysea, *Wald.*	*ib.*
Zosterops Austeni, „	56
Alcippe magnirostris, „	*ib.*
Stachyris assimilis, „	*ib.*
Drymoeca Blanfordi, „	57
Horeites sericea, „	*ib.*
Suya erythropleura, „	58
Garrulax nuchalis, *God.-Aust.*	*ib.*
Suya khasiana, „	59
Notes—	
Identity of Drymocataphus fulvus, *Wald.*, and Trichastoma minor, *Hume*	59
Identity of Alcippe magnirostris, *Wald.*, and Alcippe Phayrei, *Blyth*...	60
Further remarks on distribution of Pterocles senegallus	*ib.*
Identity of Anorrhinus Austeni, *Jerd.*, and Cranorrhinus corrugatus, *Tem.*	*ib.*
A new Turdulus ;? T. Davisoni	63
Letters to the Editor—	
The Bori Bird of Sindh—H. E. M. James ...	61
A Pericrocotus from Comilla—A. Manson ...	62

No. 2.—*June.*

	Page.
Note on Buteo desertorum and plumipes, by J. H. Gurney	65
Sunbirds	69
Our Indian Certhiinæ	73
Notes on the Nidification of some birds in Burmah, by C. T. Bingham	79
Turdinus crispifrons	87
Our Indian Cisticolæ	90
Hierococcyx nisicolor	96
Novelties—	
Siva castaneicauda	100
Muscitrea cyanea	101
Siva sordida	104
Anthipes submoniliger	105
Ixulus humilis	106
Ixulus rufigenis	107
Megalaima Davisoni	108
Hypsipetes subniger	109
Leioptila Davisoni	110
Hemixus Davisoni	111
Allotrius intermedius	112
Pyctoris griseigularis	116
Dendrocitta assimilis	117
Notes—	
Anorrhinus Austeni can scarcely be identical with Craniorrhinus corrugatus	*ib.*
Polyplectron intermedius, *Hume*, identical with P. Germaini, *Elliot*	118
Euplocamus Vielloti, (which should stand as E. rufus, *Raffles*) distinct from E. ignitus ...	119
Salvadori's genus Orthoramphus, inadmissible ...	121
Jerdon's name Nucifraga multimaculata ...	122
Æthopyga miles, *Hodgs.*, to stand as Æthopyga seheriæ, *Tick.*	*ib.*
Gyps fulvus, *Jerd*=G. himalayensis, *Hume*, nec G. fulvescens	123
Larger northern crested Goshawk to stand as Lophospiza rufitincta, *McClell.*	124
Astur soloensis, *Horsf*	125
Spizaetus orientalis, *Tem.* and *Schleg.* not a synonym of S. nipalensis	*ib.*
Dates of publication of Parts I. and II. of Rough Notes	*ib.*
Edward's "little Black and Orange-colored Hawk" possibly represents one stage of Microhierax melanoleucus	126

	Page.
Falco atriceps, *Hume*, certainly distinct from F. peregrinus	128
Tinnunculus atratus, *Blyth*, of *Gray's* H. L., probably a misprint for T. saturatus ...	129
Polioaetus ichthyaetus, plumbeus, and humilis ...	*ib.*
Polioaetus Horsfieldi, apparently *Vigors'* and not *Hodgson's* name	130
? Pratincola robusta, *Tristr*=P. macrorhyncha, *Stol.*	*ib.*
Pratincola insignis	132
Phylloscopus Brooksi=P. Schwarzii	134
Ioras of Northern Guzerat, are nigro-lutea ...	*ib.*
Bubo ketupa, *Kaup.*, not a synonym of K. flavipes	135
Scops griseus of *Jerd.* which should stand as S. indicus, *Gm.*, distinct from S. malabaricus ...	*ib.*
Athene cuculoides of *Vigors* nec *Gould.* ...	*ib.*
Turdulus Davisoni, only a very old male of T. sibericus	136
Pomatorhinus Mariæ, *Wald?*=P. albogularis, *Blyth*	*ib.*
Pomatorhinus olivaceus, *Blyth*, a good species ...	137
Verreaux's Siphia Hodgsoni, probably identical with S. erythaca, *Blyth* and *Jerd.*	*ib.*
The Ceylon Phodilus, distinguished as assimilis ...	*ib.*
Suya gangetica, *Jerd.* Information wanted ...	138
Suthora daflaensis, *God.-Aust.*=S. munipurensis ...	*ib.*
Anous leucocapillus and melanogenys, wrongly figured, P. Z. S., 1876, pl. LXI.	*ib.*
Pucrasia castanea, *Gould*, erroneously identified with P. Duvauceli, *Tem.* by *Elliot*	*ib.*
Falco barbarus ? wrongly figured as F. babylonicus, P. Z. S., 1876	140
Woodcocks at Bagdad and in N. Canara ...	*ib.*
Cisticola Tytleri, from Munipur	*ib.*

Nos. 3 & 4.—*August.*

Notes on the nidification of some Burmese Birds, by Eugene W. Oates, C.E.	141
Remarks on the Genus Pericrocotus	171
Remarks upon Phasianus, insignis by D. G. Elliot, F.R.S.E., &c.	198
Notes on Captain Legge's paper on additions to the Ceylon Avifauna, by A. White, F.Z.S., &c. ...	201
Some remarks on the Indian Species of the genus Volvocira	203
The Avifauna of Mt. Aboo and North Guzerat, Addenda, by Captain E. A. Butler—	
Part I.—List of species omitted in former paper ...	207
Part II.—Further remarks upon species included in former paper	217

	Page.
Part III—Table of dates of arrival and departure of migratory species	226
NOTES ON NOMENCLATURE I	237
NOTES ON SOME OF OUR INDIAN STONE CHATS	239
A FEW ADDITIONS TO THE SINDH AVIFAUNA, by W. T. Blanford, F.R.S., &c....	245
NOTES ON SOME BURMESE BIRDS, by Eugene W. Oates, C.E.	247
REMARKS ON SOME SPECIES OF THE SUBGENUS LILLIA, Boie.	254
A MONOGRAPH OF THE CINNYRIDÆ OR FAMILY OF SUNBIRDS, by Captain G. E. Shelly, &c., (first notice)	267
NOTES ON NOMENCLATURE II	275
CATALOGUE OF THE BIRDS IN THE BRITISH MUSEUM, VOL. III., by R. Bowdler Sharpe, Esq., (notice by the Editor)	281
ASTOLA, A SUMMER CRUISE IN THE GULF OF OMAN, by Captain E. A. Butler, H.M.'s 83rd Regt	283
REMARKS ON THE GENUS SULA	304
ADDITIONAL NOTES ON THE BIRDS OF SINDH, by Captain E. A. Butler	322
RESUME OF RECENT ADDITIONS TO THE SINDH AVIFAUNA ...	328
REGULOIDES VIRIDIPENNIS, Blyth...	330
NOVELTIES—	
Pellorneum ignotum	334
Phylloscopus seebohmi	335
Chatorhea eclipes	337
Cyornis olivacea	338
RECENTLY-DESCRIBED SPECIES, Republications—	
Pellorneum pectoralis, *God.-Aust.*	340
Actinura oglei, *God.-Aust.*	341
Pomatorhinus stenorhynchus, *God.-Aust.* ...	342
Sitta magna, *Wardlaw Ramsay*	343
Limicola siberica, Dresser	344
Anthus blakenstoni, Swinh.	345
NOTES—	
Additions to the Avifauna of the Andamans ...	347
Anecdote of *Milvus govinda*	*ib.*
Hierococcyx nisicolor	*ib.*
Buteo plumipes	*ib.*
The female of *Pachyglossa melanoxantha* ...	348
Young of *Hypocolius ampelinus* from Khelat ...	349
Note on birds from Khelat	350
Additional notes on Indian *Cisticolæ*	*ib.*
Vivia innominata from the Wynaad, Nilgheris ...	351
LETTERS TO THE EDITOR—	
Cissa speciosa, killing snakes—F. LOWIS ...	352
Additional specimens of *Phodilus badius*—A. W WHYTE	*ib.*

Nos. 5 & 6.—(*November*) *December*.

	Page.
The British Association's Rules for Zoological Nomenclature, (a reprint)	355
Occasional Notes from Sikhim, No. I, by J. A. Gammie...	380
A List of Birds collected and observed on the Palani Hills, by S. B. Fairbank	387
Notes on birds observed in the region between the Mahanadi and Godavari Rivers, by V. Ball ...	410
Remarks on the genus Iora	520
Notes on the Nidification of some Burmese Birds, by W. Davison	453
Corvus macrorhynchus, of Wagler	461
Ornithological Notes, by W. E. Brooks	469
Remarks on the genus Micropternus	472
Notes on some birds in Mr. Mandelli's collection from Sikhim, Bhutan and Tibet, by W. T. Blanford ...	482
Novelties—	
Arachnothera simillima	487
Cyornis albo-olivacea	488
Hierococcyx nanus	490
Pelecanus longirostris	491
Recently-described Species, Republication—	
Bambusicola fytchii, *Anderson*	493
Notes—	
Volvocivora culminata, *Hay*	495
Butalis grisola, at Simla	*ib.*
Burnesia gracilis distinct from B. lepida ...	496
Pratincola insignis; dimensions and description of a Male	*ib.*
Chrysonotus biddulphi, *Tickell*, identical with C. shorii	497
Occurrence of Phæton flavirostris in N. E. Cachar	498
Chleuasicus atrosuperciliaris, *God-Aust*=C. ruficeps	499
Brachypteryx hyperythra, male described ...	*ib.*
Original description of Falco peregrinator, *Sundevall*	500
Phylloscopus (*Reguloides*) *flavo-olivaceus*, N.S. ...	504
This number really published in December ...	*ib.*
Erratum	*ib.*
Letters to the Editor—	
Coracias garrula, in the Mhairwarrah Hills.—O. St. John	502
On certain Raptorial birds.—J. H. Gurney ...	*ib.*
Additional species from Khandalla.—E. A. Butler	503
A Woodcock shot at Kurrachee.—E. A. Butler ...	504
Index—	
Species described or discriminated	i
Species noticed	iii

PREFACE.

THE completion of this fifth volume leaves the Editor with little or nothing to say to his readers by way of Preface.

The yearly reiteration of gratitude for kindly and generous support, which the Editor's other, and primary, duties preclude his ever fully meriting, becomes monotonous.

The hopes that he once entertained, and sanguinely expressed, of being able hereafter to make his journal more worthy of that support, have gradually faded into dream-land. He begins to realize that in this cold practical world, mansions are not built without hands, and that, with the utmost efforts on his part, a journal like the present cannot be made even to approximate to what it should be, whilst its Editor and Chief Contributor can devote to it only occasional moments, and almost the whole of his time and thoughts are absorbed by other and more important matters.

People who think poorly and write slightingly of STRAY FEATHERS, have the Editor's entire sympathy. No one probably realizes all its shortcomings so acutely as himself, or appreciates more thoroughly what it ought to be, and might perhaps become if only the Editor could find time to attend to it, as it *should* be attended to.

All he can say for it is, that, despite its patent feebleness, it is yet gradually bringing on record a mass of facts, specially in regard to the distribution of species, that will greatly facilitate hereafter the labours of others, and pave the way to some extent for that more fortunate individual to whom fate may concede the happy task (which the Editor now despairs of being ever able to accomplish) of writing a complete History of the Birds of our Indian Empire.

ALLAN HUME.

December 1st, 1877.

phayrei, *Blyth.* Alcippe ... 56*n*, 60, 113
phayrei, *Bly.* Osmotreron 39
philippensis, *Gm.* Pelicanus 169, 235, 491
philippinus, *Bp.* Corvus ... 468
philippinus, *Lin.* Merops... 18, 143, 394, 413
philippinus, *Lin.* Ploceus 160
picata, *Bly.* Saxicola ... 229, 246
picatus, *Sykes.* Hemipus... 390, 400
pictus, *Jard. and Selb.* Francolinus 211, 212 419
pilcata, *Horsf.* Timalia ... 152, 153, 251*n*
pinus, *L. Vieill.* Helminthophaga 421
piscator, *Teale.* Sula ... 307*n*, 314
piscatrix, *Lin.* Sula ...303—307, 312, 314, 318, 319
pispoletta, *Pall.* Alauda .. 327*n*
platyrhyncha, *Tem.* Limicola 344, 345
plotus, *Forst.* Sula ... 318
plumbeitarsus, *Swinh.* Phylloscopus ... 335
plumbeus, *Hodgs.* Poliocactus 11, 129, 130
plumbipes, *Hodgs.* Turnix 164
plumipes, *Hodgs.* Buteo ... 65—67, 347, 348
plumipes, *Swinh.* Carine ... 350
pluvialis, *Lin* Charadrias 247, 329
poliocephala, *Tem.* Timalia 251*n*
poliocephalus, *Lath.* Porphyrio 165
poliopsis, *Hume.* { Astur ... 9, 81 / Micronisus ... 114
pondiceriana, *Gm.* Ortygornis 409
ponticeriana, *Gm.* Tephrodornis 201, 400
poiocephala, *Jerd.* Alcippe 404
pratensis, *Lin.* Anthus ... 346
pratincola, *Lin.* Glareola ... 329
presbytis, *Müll.* Phylloscopus 331, 336
princeps, *Vig.* Pericrocotus 192
proregulus, *Pall.* Phylloscopus 330, 331
proregulus, *Pall.* Reguloides 330*n*
psaroides, *Vig.* Hypsipetes 109, 113
pucrasia, *Gould.* Tragopan 139
puella, *Lath.* Irena ... 35, 219, 327, 330, 390, 406
pugnax, *Lin.* Philomachus 224, 233
pugnax, *Tem.* Turnix ... 45, 222, 409
pulcherrima, *Sharpe.* Eudrepanis 70, 274
pulchra, *Hume.* Carine ... 114
pulchrata, *Hodgs.* Turtur 230
punctatus, *Hume.* Batrachostomus 202
punctatus, *Blyth.* Troglodytes 238
puncticollis, *Malh.* Brachypternus. ... 396
punctulata, *Lin.* Munia ... 39, 162, 390, 408
puniceus, *Tick.* Alsocomus 418
purpurea, *Lin.* Ardea ... 46, 167, 168
purpureus, *Müll.* Palæornis 21, 227, 395
pusilla, *Bly.* Erythrosterna 471
pusilla, *Müll.* Sterna ... 325
pusillus, *Hodgs.* Pericrocotus 184
pusillus, *Blyth.* Pycnonotus 246, 329
pygæus, *Hodgs.* Pycnonotus 157
pygmæa, *Naum.* { Porzana / Zapornia 215, 216, 233, 247, 329
pygmæus, *Pall* Graculus... 47, 170
pygmæus, *Hodgs.* Molpastes 35
pygmæus, *Vigors.* Yungipicus 25, 113
pyrrhotis, *Hodgs.* Venilia 26

QUADRICOLOR, *Vieill.* Iora ... 422, 429

RADIATUS, *Gm.* Cuculus ... 97, 99
rama, *Sykes.* { Hippolais 134 / Phylloppneuste ... 229
ramsayi, *Wald.* Actinodura 113
ramsayi, *Wald.* Megalaima 108, 113
rayi, *Bp.* Budytes ... 230
raytal, *Blyth.* Alaudula ... 327
rectirostris, *Shaw.* Anthodiæta 270, 271
rectirostris, *Shaw.* Anthreptes ... ... 142*n*.
recurvirostris, *Cuv.* Esacus 121, 232
religiosa, *Raffl.* Eulabes 86
religiosa, *Lin.* Eulabes ... 391, 407
rhizophoræ, *Swinh.* Cinnyris 274
rhizophoræ, *Swinh.* Cyrtostomus 71
ricordi, *Géne.* Micropternus 481

semirostris, *Lin.* Picus ... 278
senegalensis, *Strickl.* Cinnyris 271
senegallus, *Lin.* Pterocles 60, 222, 231
senex, *Leach.* Anous ... 302
sericea, *Wald.* Horeites ... 57
serrator, *Banks.* Sula ... 305, 306
shawi, *Elliot.* Phasianus 139, 198—200
shelleyi, *Sharpe.* Æthopyga 72, 274
shorii, *Vigors.* Tiga ... 497
sibericus, *Pall.* Turdulus 136,
sibilatrix, *Bechst.* Phylloscopus 336
sibirica, *Dresser.* Limicola 344, 345
sibylla, *Gm.* Pratincola ... 131
simillima, *Hume.* Arachnothera 487
simillima, *Jerd.* Merula ... 391, 403
simplex, *S. Müll.* Anthreptes 69, 70
simplex, *Bly.* Cyornis ... 489
sinensis, *Gm.* Ardetta ... 216, 233
sinensis, *Bodd.* Cissa ... 159, 352
sinensis, *Gray.* Cotyle ... 227
sinensis, *Osb.* Francolinus 164
sinensis, *Gould.* Henicurus 249, 250
sinensis, *Gmel.* Pyctorhis ... 116, 151, 250
sinensis, *Gm.* Sterna ... 325, 326
singalensis, *Gm.* Anthodiæta 270
singalensis, *Gm.* Anthreptes 28, 70, 142*n.*, 278
sinicadvena, *Swinh.* Sula 318
siparaja, *Raffl.* Æthopyga 71*n.*, 72
sirkee, *Gray.* Taccocua ... 218, 219, 245
sivalensis, *Hutt.* Palæornis 21
smyrnensis, *Lin.* Halcyon 19, 143, 394
socialis, *Sykes.* Prinia ... 406
solaris, *Tem.* Cyrtostomus 71
solaris, *Bl.* Pericrocotus ... 174, 184, 187
solitaria, *Müll.* Cyanocinela 30
solitarius, *Vieill.* Cuculus 100
soloensis, *Lath.* Astur ... 124, 125
solensis, *Horsf.* Falco ... 125
sonneratii, *Tem.* Gallus ... 222, 409
sordida, *Hume.* Siva ... 104, 113
sordidus, *Swinh.* Pericrocotus ... ... 177*n.*
spadiceus, *Gm.* Galloperdix 222, 409, 418
sparveroides, *Vig.* { Cuculus ... 97 / Hierococcyx 414
speciosa, *Shaw.* Cissa ... 37, 85, 353
speciosa, *Horsf.* Henicurus 249
speciosus, *Lath.* Pericrocotus ... ... 62, 171, 175, 190—195, 197, 383, 414
sphenurus, *Vig.* Sphenocercus 39
spilonota, *Frankl.* Salpornis 228
spinoletta, *Lin.* Anthus ... 230, 345, 346
splendens, *Vieill.* Corvus 159, 407
squamatus, *Vig.* Gecinus 396
squamigularis, *Swnd.* Micropternus 479, 481
stagnatilis, *Bechst.* Totanus 233
stellaris, *Lin.* Botaurus ... 233
stenorhynchus, *G.-Aust.* Pomatorhinus ... 342
stenura, *Tem.* Gallinago ... 46, 212—214, 232, 247, 329
stewarti, *Blyth.* Emberiza 246, 329
stoliczkæ, *Brooks.* Certhia 77—79
stolidus, *Lin.* Anous ... 285, 301, 302*n.*
streperus, *Lin.* Chaulelasmus 234
striata, *Lin.* Hypotænidia 165
striatus, *Jerd.* Chætornis 209, 228, 416
striatus, *Drapiez.* Cuculus 483, 484
striatus, *Blyth.* Ixulus ... 107, 108, 113
strigula, *Hodgs.* Siva ... 100, 113
striolata, *Licht.* Emberiza 247
striolata, *Licht.* Fringillaria 329
striolata, *Tem.* Lillia ... 254, 261, 264, 266
striolatus, *Blyth.* Gecinus 26, 113, 396, 413
subardens, *Hume.* Pericrocotus 196
subbuteo, *Lin.* Hypotriorchis 4, 226
subcollaris, *Hartl.* Nectarinia 269
subflava, *Vieill.* Muscicapa ... ... 172*n.*
subfurcatus, *Blyth.* Cypselus 17
submoniliger, *Hume.* Anthipes 105, 113
subniger, *Hume.* Hypsipetes 109, 113
subochraceum, *Swinh.* Pellorneum 113, 154, 341
substriolata, *Hume.* Lillia 264 266

subundulata, *G.-Anst.* Munia ... 39, 141*n.*, 162
subviridis, *Tick.* Iora ... 429, 433
succica, *Lin.* Cyanecula ... 229
sula, *Lin.* Sula ... 312, 318, 320, 321
sulphurea, *Bechst.* Calobates 230
sultaneus, *Hodgs.* Chrysocolaptes 26
sumatrana, *Raffl.* Sterna 325
sumatranus, *Less.* Eulabes 38, 86
sumatrensis, *Lafr.* Baza ... 202*n.*
superbus, *Shaw.* Cinnyris 272
superciliaris, *Jerd.* Muscicapula 415
superciliaris, *Vieill.* Sterna 325
superciliaris, *Blyth.* Sturnopastor 38, 114 159
superciliosus, *Gm.* Regulus 330*n.*,
superstriata, *Hume.* Munia 39, 141*n.*, 162*n.*
suratensis, *Gm.* Turtur ... 231, 391, 409
sutorius, *G. R. Forst.* Orthotomus 158, 406
swainsoni, *A. Smith.* Circus 11, 226
swinhoei, *Hume*, Merops ... 18
sykesii, *Strickl.* Volvocivora 220, 400
sylvicola, *Jerd.* Tephrodornis 390, 400

TABACINA, *Lath.* Certhia ... 269
tacazze, *Stanley.* Nectarinia 275
tachardus, *Bree.* Falco ... 67
taigoor, *Sykes.* Turnix ... 231
talatala, *Smith.* Cinnyris ... 273
temminckii, *S. Müll.* Æthopyga 72
temminckii, *Horsf. and M.* Arachnoraphis ... 70*n.*
temminckii, *Horsf. and M.* Arachnothera ... 487
temmincki, *Hume.* Lillia ... 259
temminckii, *Vig.* Myophoneus 30, 113
temminckii, *Leisl.* Tringa 233
tenellipes, *Swinh.* Phylloscopus 336
tenuirostris, *Blyth.* Oriolus 35, 113
tephrocephala, *Anders.* Cryptolopha ... 113
tephrolæma, *Jard. and Fraser.* Anthodiæta ... 271
tephrolæma, *Sharpe.* Nectarinia 271
tephronotus, *Vig.* Lanius 29
terricolor, *Hodgs.* Alcedonax 470
terricolor, *Hume.* Drymoipus 236
tibetana *Saunders.* Sterna 485
tibetanus, *Gmel.* Polyplectron 118, 119
tickelliæ, *Blyth.* Cyornis ... 402, 489
tickelli, *Bly.* Hypsipetes ... 113
tickellii, *Blyth.* Pellorneum 154, 334, 341
tickelli, *Hume.* Pomatorhinus 32
tigrinus, *Tem.* Turtur ... 164
timunicula, *Lin.* Cerchneis 392
tiphia, *Lin.* Iora ... 421, 423, 426, 428—431, 434—438, 444
torquatus, *Bodd.* Palæornis 21, 144, 395
torquilla, *Lin.* Yunx ... 27, 227
tricolor, *Hodgs* Siphia ... 471
tridactyla, *Pall.* Ceyx ... 19, 503
tristis, *Lin.* Acridotheres .. 38, 160, 384, 391, 407
tristis, *Bly.* Phylloscopus 229
tristis, *Less.* Rhopodytes ... 27, 144
trivirgata, *Cuv.* Lophospiza 8, 124, 502
trochiloides, *Sund.* Phylloscopus 332, 333, 504
trochilus, *Lin.* Phylloscopus 336
typhia, *Lin.* Ægithina ... 157
typhia, *Lin.* Iora ... 406
typicus, *Hodgs* Ichthyætus... 129*n.*
tytleri, *Bly.* Cisticola ... 90 94, 140, 350, 351

UMBROVIRENS, *Rüpp.* Phylloscopus 336
unicolor, *Bly.* Cyornis ... 489
unicolor, *Tick* Geo richla .. 228
uropygialis, *G. R. Gr. and M.* Arachnoraphis ... 70*n.*

VAGANS, *Bernst.* Arachnoraphis ... ... 70*n.*
vaillantii, *Less.* Corvus ... 159, 468
varians, *Lath.* Crypsirhina 141*n.*, 159
variegata, *Tschudi.* Sula ... 305, 307, 312, 317, 318
varius, *Vahl.* { Cuculus ... 96*n*, 97, 98 / Hierococcyx 227, 397, 413 }
ventralis, *Cuv.* Hoplopterus 46
venustus, *Shaw.* Cinnyris ... 273, 275
vernalis, *Sparrm.* Loriculus 25, 395

verreauxi, *Smith.* Cinnyris 272
vespertinus, *Lin.* Erythropus 7
vibrisca, *Bodd.* Palæornis... 21
vidua, *Hartl.* Volvocivora 206
vieilloti, *G.R. Gr.* Euplocamus 42
vieilloti, *Shaw.* Gallophasis 119, 120
vigorsii, *Sykes.* Æthopyga 72, 122, 123
vindhiana, *Frankl.* Aquila 286, 470*n*.
violacea, *Lin.* Anthobaphes 273
virgatus, *Tem.* Accipiter ... 226
virgo, *Lin.* Anthropoides... 232
viridifrons, *Blyth.* Crocopus 141*n*, 163
viridipennis, *Bly.* Phylloscopus 331, 333
viridipennis, *Bly.* Reguloides 330, 458, 504
viridirostris, *Jerd.* Zanclostomus 397
viridis, *Gmel.* Budytes ... 246*n*
viridis, *Hodgs.* Cochoa ... 37
viridis, *Bly.* Gecinulus ... 113
viridis, *Tem.* Iora ... 429, 436
viridis, *Bodd.* Megalaima 390, 396
viridis, *Lin.* Merops ... 18, 143, 394
viridissima, *Tem.* Iora ... 423, 429 432, 440
vittacauda, *Jam.* Certhia 78
vittatus, *Vieill.* Gecinus 113
vivida, *Swinh.* Cyornis ... 489
vulgaris, *Lin.* Sturnus ... 230, 246
vulgaris, *Steph.* Francolinus 211 212
vulpanser, *Flem.* Tadorna 217, 234

WALDENI, *G.-Aust.* Actinura 342
waldeni, *Hume.* Æthopyga 51, 71*n*.
wardii, *Jerd.* Turdulus ... 63, 202*n*.
wilsoni, *Keys. & Blas.* Oceanites 291
wilsoni, *Bp.* Oceanites ... 292
wilsoni, *Bp.* Thalassidroma 285
wilsoni, *Tem.* Thalassidroma 291

XANTHOCHLORA, *Hume.* Anthreptes 69
xanthodrias, *Swinh.* Phylloscopus 336
xanthogaster, *Raffl.* Pericrocotus 172 197
xanthonotus, *Horsf.* Oriolus 423

ZAMBESIANA, *Shelly.* Anthodiæta 260
zenobius, *Less.* Cyrtostomus 71
zeylonica, *Lin.* Cinnyris 270, 398
zeylonica, *Gm.* Iora ... 220, 406*n*, 421, 426, 429, 431—438