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Now neither his specimens nor the dimensions he gives show his birds to be a bit larger than *Suya crinigera*, Hodgson, for which I had always thought *S. lepida* was a misprint. But thinking over the matter, I do not doubt that Swinhoe had received from Blyth a specimen of *Burnesia lepida*, which Blyth at one time called *Drymœca*, and at a another *Suya*, and that taking this for Hodgson's Himalayan species, he naturally enough found his Formosan bird "very much larger."

Anyhow the Formosan birds are absolutely identical with Himalayan ones. The species is one that varies incredibly in size, (wing from barely, 1·8 to 2·35, or even more), females being, as Swinhoe correctly remarks, much smaller than males, and in coloration; but both Chinese specimens are matchable to a feather by others in our very large Himalayan and Khasia Hill series.

Although I have no specimens to compare, and cannot therefore "make assurance doubly sure," I feel assured that *Suya parumstriata*, Dav. and Oust., Ois. de la. Chine, 259, 1877, is merely one stage of this same species.

Suya fuliginosa, Hodgs. (Gr. Zool. Miscl., 1844, 82, *sine descr.*; *Moore*, Cat. B. Mus. E. I. C., 326, 1854; *descr. orig.*) with the black bill is beyond all doubt merely the breeding plumage of *crinigera*.

Lastly, *Suya obscura*, Hume, (S. F., II., 507, 1874,) is, I now strongly suspect, only one stage of this same protean species. The type, however, (and I have met with no other specimen and cannot remember clearly what the type was like,) belonged to Captain Biddulph, and is now, I believe, in Mr. Sharpe's custody in the British Museum, and he can easily satisfy himself whether my surmise is correct.

It may now be well to explain briefly the more striking differences between the breeding and midwinter plumage of *crinigera*.

Non-breeding Plumage.	Breeding Plumage.
Bill.—Brown above; greater part of lower mandible pale yellowish or pinkish horny.	*Bill.*—Entirely black.
Head and upper back.—Rich, more or less rufescent and more or less deep brown, conspicuously striated with pale, more or less rufescent fawn or yellowish brown.	*Head and upper back.*—Duller and duskier brown—the pale striæ faded to greyish, very much reduced in width, often almost obsolete.
Quills.—Margined with bright ferruginous (growing duller month by month).	*Quills.*—Margined with a pale faintly rufescent olivaceous.
Supercilium.—Small, and inconspicuous, creamy.	*Supercilium.*—None.

The autumn plumage of the young birds differs a good deal from both these. The striations of the head and back are less defined than in the midwinter plumage; the pale portions being more rufescent and darker coloured, and the lower surface is much tinged, as a rule, with dull yellow, though sometimes, as in the specimen described as *parumstriata*, this is wanting.

No one could be blamed for making three species out of the autumn (September and October), midwinter and midsummer plumages of this species; but the examination of a series, including from 10 to 30 killed in each month, proves beyond all doubt that all pertain to the same one species.

The plain-backed species are apparently more numerous, and include, so far as I can make out, two *pairs* of species, one, of which, *S. khàsiana* (God.-Aust., A. and M. N. H., October 1876, —S. F., V., 59,) is the type, of which the prevailing tint of the upper surface is rufescent, and the other, of which *S. atrogularis* (Moore, P. Z. S., 1854, 77) is the type, in which the prevailing tint of the upper surface is olivaceous, more or less dusky on the head in the breeding plumage.

It may be that the other two species, *Suya erythropleura*, (Wald., J. A. S. B., Ext. No. 1875, 120.—S. F., V., 58) of the *khasiana* type, and *Suya superciliaris*, (Anders., P. Z. S., 1871, 212,—S. F., VI., 350,) of the *atrogularis* type, are not really distinct. Too few specimens have been obtained of these to enable us to be certain, but for reasons to be explained further on I at present incline to believe that both are distinct representative species.

Both *atrogularis* and *khasiana* we know well, having huge series killed at all seasons, and at present it is not unreasonable to suppose that the changes of plumage in the other two species (if these are distinct) will be very similar to those which we can prove to exist in the two which we know fully.

In this group the most conspicuous differences between the winter and summer plumages seem to be that, in the winter plumage there is a long conspicuous supercilium, and the throat and breast are white or creamy or buffy, the breast being often feebly marked with very narrow irregular, continually almost obsolete, black striæ, while in the breeding plumage there is no supercilium, and the throat and upper breast are pure black. There are many other co-ordinated differences, some of which I shall notice in dealing with the separate species.

Atrogularis in *full breeding plumage* has the upper mandible nearly black, the lower brownish pink; no supercilium; lores blackish dusky; chin and throat and upper breast pure black; a

conspicuous whitish mandibular stripe; somewhat olivaceous grey ear-coverts; forehead, crown, occiput, dusky; back less dusky, and with an olivaceous tinge; tail feathers narrow and abraded.

In non-breeding plumage it has the upper mandible pinkish brown; lower pink; a conspicuous fulvous white supercilium from nostrils; lores olivaceous; chin, throat, and upper breast, pale, rather sordid fulvous, albescent on chin and middle of throat; no mandibular stripe; pure olive brown ear-coverts; forehead, crown, occiput and back, pure olive brown; tail feathers much broader and not abraded.

In intermediate stages, sometimes the cap is shaded with dusky, and the breast feathers (and these only) *very narrowly* fringed laterally with black.

In this stage the bird is so extremely like *S. superciliaris*, Anderson, that I have felt doubtful of their distinctness; clearly, if not identical, *superciliaris* is the corresponding intermediate plumage of a closely-affined species; but there are points of difference which seem to me to point to its being distinct.

In *superciliaris*, the chin and throat are a much cleaner purer creamy than in any specimen of *atrogularis* that I have seen, (and I have between 50 and 60 before me now).

The supercilium is pure white, while in *atrogularis* it is apparently always pale fulvous; and the flanks and sides are clear buff, while in *atrogularis* they seem to be invariably tinged strongly with olivaceous; and the lores and feathers behind the eye are much darker than in any specimen of *atrogularis* that has not got the chin and throat black.

Suya khasiana, a perfectly distinct species, but goes through precisely the same stages of plumage.

In the *full breeding plumage* its bill is darker; it has no supercilium; its lores are dusky; chin, throat, and upper breast pure black; white mandibular stripes similar to those of *atrogularis*; very similar ear-coverts, but forehead, crown, and occiput dull rufescent, and back strongly rufescent olive; narrow and abraded tail feathers.

In the *non-breeding plumage* its bill is paler; it has a conspicuous *white* supercilium; its lores are white; chin, throat, and upper breast nearly pure white, a little creamy; no mandibular stripes; clear olivaceous brown ear-coverts; and forehead, crown, and occiput clear rufous, and back only slightly browner; tail feathers much broader and unabraded.

This too has an intermediate stage, in which the breast feathers show very narrow black lateral margins, in which the red of the head is somewhat duller, and in which there is a dark spot in front of the eye.

Some specimens in these stages are almost undistinguishable on the *lower* surface from *superciliaris*, but the sides and flanks are never quite the clear rufous buff of this latter, but have always a certain intermixture of an olive tinge, though less than in *atrogularis*; and the lores and feathers immediately behind the eye are never so dark as in *superciliaris*. The upper surface of course differs *toto cœlo*, for whenever and so long as the white *supercilium* continues in *khasiana*, the rich rufous of the cap is as distinct as possible, from the olive shaded with dusky, (or washed with black as Anderson calls it) of *superciliaris*. It is to some stages of *atrogularis* that the *upper* surface of this latter approaches, and so closely, that with the birds held back uppermost by the heads with finger and thumb, so as to hide lores, ear-coverts and supercilia, they cannot possibly be distinguished.

In a word, *superciliaris* in its upper surface is undistinguishable from one stage of *atrogularis*; in its lower surface, it is barely separable from one of *khasiana*.

No doubt, *superciliaris* will be found in breeding plumage, with black chin and throat, dusky head and no supercilium, and duskier back; and again, in the non-breeding plumage, with cap and back uniform pure olive brown, like *atrogularis*. In the non-breeding plumage its white supercilium will separate it from this, and in this and the breeding plumage also, I should expect, the clear pure buff of the flanks and sides would suffice to distinguish it.

Then we have *Suya erythropleura*, which I have never seen. The dimensions and the description of the whole upper and the greater part of the lower surface applies admirably to some stages of *khasiana*; *but* in *erythropleura*, "flanks, thigh-coverts and under tail-coverts are *bright ferruginous*." Now, if these words are correctly applied, this must be a distinct species.

In no single specimen (out of more than 50) of *khasiana*, killed from April to December, can the flanks, by any possibility, be correctly styled "*bright ferruginous*;" at *brightest* they are rufous or fulvous *buff*, slightly intermingled with olive, (much more so of course in breeding plumage.) With this exception, the description tallies perfectly; but, as we have already seen, this difference in the color of the flanks is in this little subgroup important.

Most probably if *erythropleura* is distinct, we shall hereafter find it in breeding plumage, with no supercilium and with black chin and throat, and we shall meet with specimens of it exhibiting faint blackish striæ on the breast, as in corresponding stages of *atrogularis*, *khasiana*, and (if, as I believe, distinct from the former) *superciliaris*.

It is possible that a third type of *Suya* may exist in *S. gangetica* (*Jerd.*, *Blyth*, *Ibis*, 1867, 23), of which I quoted the original and only description, S. F., V., 138. This description, however, is so curt and insufficient that the bird referred to may be anything. I have never seen it, and I cannot find any one who has. It is said to be common along the *Upper* Ganges, whereby one can only understand the Ganges somewhere *above* Allahabad. Now, from Allahabad to where it becomes the Bhagiruttee (*i.e.*, inside the Himalayas), I and many others have most thoroughly explored the banks of the Ganges, and none of us have met with any *Suya*. Moreover, throughout its course above Allahabad, the Ganges runs through alluvial plains, while *Suya* is essentially a genus belonging to the hilly country. I suspect Jerdon made a mistake, as he often did (and as any one else might) when writing letters carelessly, without any books to refer to. I find some faded specimens of *Drymoica rufescens*, nobis, which answer tolerably, so far as the brief description and dimensions go, to *Suya gangetica*, and he might have got hold of this, and there are several other birds more or less *Suya*-like in appearance, which he might have met with. Altogether I consider this species a very doubtful one, and the description, as already remarked, is so very brief and vague, that I hardly think the species deserving of retention on our list.

A. O. H.

The genus Porphyrio and its Species.

By D. G. Elliot, F.R.S.E., &c.

The splendid collection of specimens of this genus in the Paris Museum furnished my materials for the present paper, and I would express to Professor A. Milne Edwards my thanks for the facilities afforded me, and for placing at my entire disposal all the examples of *Porphyrio* under his charge. The collection is rich, not only in number of specimens, but also fortunately possesses them from the majority of places in which this genus has as yet been known to occur; and I was therefore enabled, by comparing individuals from various and widely-separated localities, to ascertain without difficulty the specific value of different ones from certain islands, which had been described as distinct, and relegate them to their proper position.

The species included in this Paper possess many and striking characters that separate them from those of all allied genera.

A prominent one of these is the bill, which is large, very strong, thick and compressed at the base; the frontal plate or head-shield covers the top of the head, and becomes almost a bony casque. The nostril is placed high up, nearer the culmen than the commissure, at about one-fourth the length of the maxilla from the base, in shape almost round or very slightly oval, open and not surrounded by a membrane.

With the birds I have here considered as constituting the genus *Porphyrio*, some authors have placed the *Fulica martinica*, Lin, *Fulica parva*, Bodd., and *Porphyrio alleni*, Thompson, while others have referred these to *Gallinula*.

It does not, however, seem to me that the species just named properly belong to either of these genera, but more naturally constitute a genus by themselves, as their characters are intermediate between *Porphyrio* and *Gallinula*. They differ from the first-named by having bills of moderate size, curving but slightly at the tip, and expanding at the base into a thin flat rather small plate which covers the forehead chiefly, and is very different in character from the head-shield of the birds given in this memoir. The nostril is longitudinal, situated in the middle of the maxilla and surrounded by a membrane, markedly different from that observed in *Porphyrio*. The species also are much smaller in size.

For these birds the term *Porphyrula* (altered by Sundeval* to *Porphyriola*), proposed by Blyth† for *his*‡ *Porphyrio chloronotus*, (nec Vieill.) may be employed. It does not seem to be exactly ascertained what this species is, and the locality whence it came is unknown; but Blyth says it is "similar to *P. alleni*, but very much smaller, measuring, wing, 5·25; bill to gape, 1·37; tarsus, 2 inch; while the type of *alleni* measures, wing, 6·5; bill to gape, 1·25; tarsus, 2 inch—a difference apparently confined entirely to the wing, and certainly not sufficient to constitute a distinct species; and as Blyth seemed to know *alleni* at that time only from the plate in Gray's genera of birds, it is not impossible but that he had a specimen of it before him. Bonaparte makes *martinica* the type of Blyth's genus, and an examination of the type, if still existing in the Calcutta Museum, will be necessary to decide if he is correct. But it is really of very little moment whether *alleni* or *martinica* is proved to be the type, as from a comparison made with numerous specimens of both species, I consider that they belong to a genus different from *Porphyrio*, and one well indicated by *Porphyrula*. If, however, this last term should

* Meth. Nat. Av. Dispon. Tentam. (1872) p. 131.
† Cat. B. Mus. Asiat. Soc., p. 283.
‡ Journ Asiat Soc. Beng. (1849), p. 820.

eventually be ascertained to have been bestowed upon a bird generically distinct from those named above, then *Ionornis* proposed by Reichenbach (Nat. Syst., p. XXI., 1853), will probably be the one necessary to adopt for them.

The genus *Porphyrio* was instituted by Brisson in his Ornithologie, with the *P. chloronotus*, Vieill., as the type. It has received but one synonym, *Cæsarornis*, Reich. The terms *Ionornis* and *Glaucestes*, Reich, *Hydrionia*, Hartl., and *Porphyrula*, Blyth, which have been given sometimes as synonyms, belong to species with quite different generic characters from those possessed by the members of *Porphyrio*.

I am able to recognise nine species, of which number, the *P. cœlestis*, Swinhoe, from Amoy, China, is doubtful, as it is probably the same as *P. calvus*, Vieill., from one of the islands in the Eastern Archipelago. As the specimen described was living at the time in captivity, and as it is not known, so far as I am aware, what became of it, the determination of the species from the type will be a rather difficult matter.

The birds included in this Paper are of large size, with an attractive plumage, composed mainly of blue and green colours, with bright red bills, legs and feet, and also a large shield covering nearly all the top of the head, of the same brilliant hue.

I commence with a brief review of the

Literature of the Genus.

1766.—*Linnæus Systema Naturæ.*
In his genus *Fulica*, Linnæus includes one species of *Porphyrio*, *F. porphyrio*, (= P. chloronotus, *Vieill.*)— *Species*, 1.

1774.—*Gmelin—Reiss-Russl.*
Porphyrio veterum first described ... *Species*, 2.

1801.—*Latham—Index Ornithologicus, Supplement.*
The Grey-headed Gallinule of the synopsis is here named *Gallinula poliocephala*, and another, most probably an immature individual of the same species, *Gallinula madagascariensis*. This last is however a doubtful determination, as Latham's description really answers for no species at present known. *Species*, 3.

1819.—*Vieillot—Nouveau Dictionnaire d' Histoire Naturelle.*
In the 28th volume of this publication, the author gives a list of species, which he considers belong to the genus *Porphyrio*. As, however, some belong to

other genera, I will merely notice those that are properly included in this paper. The *Fulica porphyrio*, Linn, is named. *Porphyrio chlorynothos* (lege chloronotus), *P. cyanophalus* (lege cyanocephalus) and *P. calvus* are named for the first time .. *Species*, 5.

1820.—*Temminck—Manuel d'Ornithologie.*

In this work three species of this genus are named, none, however, for the first time, viz., *P. hyacinthinus* (=P. veterum, *Gmel.*), *P. smaragnotus* (=P. chloronotus, *Vieill.*), and *P. melanotus* (=P. cyanocephalus, *Vieill.*)

1821.—*Horsfield—Transactions of the Linnæan Society.*

The *P. calvus*, Vieill., is here renamed *P. indicus.*

1823.—*Vieillot—Encyclopædie Méthodique.*

A nearly duplicate list of that in the Dictionnaire d'Histoire Naturelle with the *P. cyanophalus* changed to *P. cyanocephalus.* No new species added.

1826-27.—*Temminck—Planches Coloriées.*

In the 68th Livraison of this great work, a list of *Porphyrio*, as known to the author, is given, and in this and the 71st Livraison two species are figured. Six species are named in the list, viz., *P. hyacinthinus* (=P. veterum, *Gmel.*), *P. smaragnotus* (=P. chloronotus, *Vieill. P. pulverulentus*, named for the first time; *P. albus*, possibly a *Notornis* (Albino), *P. melanotus* (=P. cyanocephalus, *Vieill.*) and *P. smaragdinus* (=P. calvus, *Vieill.*) ... . *Species*, 6.

1840.—*Gould—Proceedings of the Zoological Society of London.*

Porphyrio bellus, from Australia, described ... ... *Species*, 7.

1845.—*Gray—Genera of Birds.*

A list of seventeen so-called species is given in this publication, (several of them marked with a doubt ?), the majority of which do not properly belong to the genus *Porphyrio*, but

are members of *Gallinula*, *Porphyrula*, *&c.* According to the present writers' views, but five of the species given can be included in the present genus, viz., *P. veterum*, Gmel., *P. calvus*, Vieill., *P. poliocephalus*, Lath., *P. melanotus*, Temm. (=P. cyanocephalus, *Vieill.*), and P. bellus, *Gould.* No new species are described.

1848.—*Peale—United States Exploring Expedition, Zoology.*

The *P. calvus*, Vieill., from Upolu, of the Samoan Islands, and from Viti of the Feegee Islands is here named respectively *P. samoensis* and *P. vitiensis.*

1862.—*Schlegel—Muséum des Pays-Bas.*

The *P. poliocephalus*, Lath., from India is named *P. neglectus*, and Latham's species referred to the *P. pulverulentus*, Tem., to which, however, it has hardly any resemblance.

1868.—*Swinhoe—Ibis.*

A bird observed in captivity at Amoy, China, is described as having a *white rump*! and is called *P. cœlestis.* *Species*, 8.

1875.—*Hartlaub & Finsch.—Ornith. Sudsee-Ins. Palau Gruppe.*

P. cyanocephalus, Vieill., from these islands is named *P. pelewensis.*

1876.—*Tristram—Ibis.*

P. calvus, Vieill., from the New Hebrides, called *P. aneiteumensis.*

1877.—*Elliot—Annals and Magazine of Natural History.*

P. edwardsi—from Cochin-China, described *Species*, 9.

Classification.

The species comprising the genus *Porphyrio* belong to the family *Rallidæ* of the order *Geranomorphæ*, and are placed properly near *Notornis* with the members of which they are closely allied, differing chiefly in having the middle toe longer than the tarsus. They are also connected to the species contained in *Gallinula* by the birds for which the term *Porphyrula* has been proposed, and which are intermediate in their generic characters.

The members of *Porphyrio* have a narrow sternum, with one lengthened emargination, and a weak furcula. The stomach is muscular, the intestines long, and cœca large; the tongue is thick and fleshy, with a horny tip; toes long and slender,

enabling the bird to walk readily over the water plants, though the species can swim well and easily; the large foot is frequently employed to hold the food, very much in the manner of a parrot, while the bird is eating. In the arrangement of the species, colour is our only guide, as no one possesses any characters to entitle it even to a sub-generic position, but certain species have a resemblance to each other in the hues of their plumage, as well as in their distribution, which enables them to be associated in apparently natural groups. Five of these are recognizable, the pecularities characterizing each of which will be found in the key.

GEOGRAPHICAL DISTRIBUTION.

The members of the genus *Porphyrio* are met with only in five of the Zoogeographical divisions of the globe, *viz.*, the Palæarctic, Ethiopian, Oriental, Australian and Pacific regions. It is not represented in either North or South America so far as is known.

The first of the above-named division possesses but one species, with two more doubtfully recorded, but which are probably merely stragglers from neighbouring regions, or else indivduals that have escaped from confinement. The next has also but one species; the third, (the stronghold of the genus), has four; the fourth two, one of which is restricted to it, and the last, also two.

Beginning with the Palæarctic region, we find that the *P. veterum* is found in various portions of Southern Europe, such as Portugal, Spain, the Balearic Isles, Sicily and Sardinia. In North Western Africa it is not uncommon, and it breeds in Algeria. Eastward it ranges to the Caspian. The other species recorded from this region are *P. chloronotus*, (given also by Sykes as *P. smaragnotus*, Temm., from the Deccan, Oriental region, but which is certainly intended for *poliocephalus*, Latham), and the *P. cœlestis*, Swinhoe, from Amoy, the species founded on an example living in captivity, and which is probably the *P. calvus*, Vieill., from some island in the Eastern Archipelago.

The Ethiopian region has only one representative of the genus so far as known, the *P. chloronotus*, Vieill., distributed generally throughout the Continent, and extending into Madagascar of the Malayan sub-region.

The Oriental region possesses the greatest number of species, and in India the *P. poliocephalus* appears to be almost universally distributed.* In the Indo-Chinese sub-region, the *P. edwardsi* is met with in Cochin China and Siam, and possibly

* Extending throughout Arakan, Pegu and Tenasserim as far south as 10° *N. Lat.*—ED.

may hereafter be found in Tenasserim. In a number of the Indo-Malayan Islands, the *P. calvus* is found, and this species extends its range through the Moluccan and Papuan groups of the Australian region to the islands of the Pacific region, the most eastern of which is the Samoan group. In the Philippine Archipelago the *P. pulverulentus* is found, but the particular island or islands of which it is a native, is not at present known.

The Australian region, besides the species in the island groups already mentioned, contains the *P. bellus*, Gould., abundant in the south-western parts of Australia, while the *P. cyanocephalus*, Vieill., is universally distributed over the greater part of the Continent and also in Tasmania; and has been obtained in Yule Island, New Guinea.

This last-named species is also met with in the Pacific region, being a native of New Zealand, the Chatham Islands and New Caledonia.

Genus Porphyrio.

Type.

Porphyrio, Briss. Ornith. (1760), Vol. V., p. 522 ... ... *P. chloronotus*, Vieill.

Cæsarornis, Reich. Nat. Syst. Vogel., p. xxi. (1852). ... ... *P. poliocephalus*, Lath.

Characters.—Bill strong, thick, compressed at the base; the maxilla curving abruptly at its apical half; the gape also slightly curved. Top of head covered by a thick plate or bony shield, in some individuals almost developed into a casque. Nostrils open, slightly oval, not surrounded by a membrane, placed high upon the maxilla, nearer the culmen than the commissure, nearer the base than the tip. Wings, moderate; the third and fourth quills longest. Tail rather short. Tarsi strong, rather thick; toes very long; middle toe longer than tarsus, bordered by a narrow membrane; claws very long, much curved, acute.

Key to the Species.

A. Occiput and back of neck black; legs and bill red.
  (*a.*) Cheeks black; back greenish black. 1. *P. cyanocephalus.*
  (*b.*) Sides of head turquoise blue; back dark blue ... ... 2. *P. veterum.*

B. Head, neck and under surface, deep blue; back brownish-black; legs grass green ... ... 3. *P. bellus.*

C. Breast turquoise blue.
  (*a.*) Occiput, sides of face and chin black; back and rump blackish-

blue, washed with green; under parts dark violet blue ... 4. *P. calvus.*

(*b.*) Like the above, but with the rump white! ... ... 5. *P. cœlestis.*

(*c.*) Occiput dark blue; sides of face and chin turquoise blue; back grass green; under-parts pale violet blue ... ... 6. *P. chloronotus.*

D. Sides of face and occiput near the head-shield, grey, tinged with purple.

(*a.*) Back and rump dark purple; wings pale greenish-blue ... 7. *P. poliocephalus.*

(*b.*) Back, rump, wings and tail, uniform greenish black ... 8. *P. edwardsi.*

E. Head, neck and breast greyish-blue; wings ultramarine; back and tail reddish-brown; abdomen, flanks and thighs indigo blue ... ... 9. *P. pulverulentus.*

1.—Porphyrio cyanocephalus.

Porphyrio cyanophalus, (lege *cyanocephalus*), Vieill., Nouv. Dict. d'Hist. Nat. (1819), t. 28, p. 28.

Porphyrio melanotus, Temm. Man. Ornith. Tom., II, p. 701, (1820).—Shaw, Gen. Zool. Vol. XII, (1824).—Gray, Gen. B. Vol. III, p. 598.—Id. *Ibis*, (1862), p. 240.—Jouan. Mem. Societ. Imp. Scien. Nat. (1863), p. 245.—Schleg. Mus. Pays. Bas. p. 57, Ralli.—Finsch, Jour. für, Ornith. (1870), p. 358.—Brehm. Jour. für. Ornith. (1871), p. 34.—Hutt., *Ibis*, (1872), p. 247.—Bull. Birds N. Zeal. (1873), p. 185.—Brown, *Ibis*, (1874), p. 96.—Albert. Proc. Zool. Soc., (1875), p. 530.

Porphyrio cyanocephalus, Vieill., Ency. Méth. Tom., 111 p. 1051, (1823).

Porphyrio melanonotus, Blyth, Cat., B. Mus. Asiat. Soc. (1849), p. 283.—Layd. *Ibis*, (1877), p. 363, sp. 81.

Porphyrio melanonotus var. *pelewensis*, Hartl., and Finsch, Proc. Zool. Soc., (1872), p. 107.

Porphyrio pelewensis, Hartl., and Finsch, Ornith. Sudsee-Ins. Palau Gruppe, (1875), p. 39, (small var.)

Porphyrio stanleyi, Rowl., Ornith. Misc. Part II, pl, ix, (1875), albino.

Pukeko. Pakura. New Zealand, Buller.

Hab.—Australia. Yule Island, New Guinea, (*d'Albertis*). New Zealand, New Caledonia (*Jouan, Layard*), Chatham Islands. (*Hutton*).

This species is distributed generally throughout Australia, Tasmania, and New Zealand, besides some of the islands contiguous to the latter. It is apparently very abundant in the localities it frequents. According to Gould specimens from various parts of the Australian continent differ in size, and Dr. Buller, in his Birds of New Zealand, mentions different variations of plumage occurring among examples seen by him from the latter country, some of which were partially white. The specimen in the Liverpool Museum, described by Mr. Rowley, (*l.c.*), as *P. stanleyi*, is probably a nearly perfect albino of this species. The present bird is rather shy, although when domesticated it becomes very tame. It builds its nests in swampy situations, depositing from two to seven eggs, measuring 2·2 × 1·5 inches, usually of a "pale yellowish brown, spotted and blotched with purplish and reddish brown," presenting a general individual diversity of colouring.

Adult.—Occiput, cheeks, chin, back, wings and tail, black; rest of plumage indigo blue; outer webs of primaries pale blue; frontal plate, bill, legs, and feet red; the bill is palest towards the point. Total length, 18 to 19 inches; wing, 10·5; tail, 4·62; bill at gape, 1·5 to 1·62; width of head-shield at its posterior margin, 0·62 to 1 inch; tarsus, 3·37 to 3·62; middle toe, 3·37; claw, 0·87 inch.

Immature individuals have the lower parts streaked with brownish white.

Young, almost entirely black, with a faint tinge of blue upon the breast and flanks; bill in the skins, brownish black, with a yellowish bar crossing both maxilla and mandible in front of the nostrils in one specimen, but in another the yellow takes a lengthwise course beneath the culmen and above the gonys.

2.—Porphyrio veterum.

The Purple Water Hen, Edw. Nat. Hist. Birds, Vol. II., p. 87, pl. 87, (1747).

Porphyrio veterum, Gmel. Reiss Russl., Vol. III., p. 79, (foot note) pl. 12, (1774).—Gray, Gen. Birds, Vol. III., p. 598.—Bolle. Jour. für Ornith., (1855), p. 314.—Salvadori, Jour. für. Ornith., (1865), p. 282.—Brooke, *Ibis* (1873), p. 336, sp. 154.—Von Heugl. Ornith. Nord-ost Afr., (1873), Band. II, p. 1234.—Dress. Birds Eur., Part. 50, May 1876.

Fulica cærulea., Vandelli. Flor. et Faun. Lusit. (1780), p. 37.

Gallinula porphyrio, var. B., Lath. Ind. Orn., Vol. II., p. 768, (1790.)

Fulica porphyrio, Pall. Zoog-Ross-Asiat., Vol. II., p. 156, (1811.)

Porphyrio hyacinthinus, Temm. Man. Ornith., Vol. II., p. 698, (1820).—Salv., *Ibis*. (1859), pp. 357 to 361.—Tristr., *Ibis*, (1860), pp. 80, 159.—Drake, *Ibis*, (1867), p. 428.—Taczanow. Jour. für. Ornith. (1870), p. 54.—Saund., *Ibis*, (1871), p. 225.

Porphyrio antiquorum, Bon. Icon. Faun., Ital, p. 72, Tabl. 44. (1832-41).—Gould, B. Eur., pl. 340, Vol. V.—Keyserl. and Blas. Wirbelth. Eur. (1840), p. 68.

Porphyrio cœsius, Schleg. Mus. Pays B. Ralli., p. 52, (1865).

Porphyrio hyazinthinus, Brehm. Jour. für. Ornith. (1871), p. 34.

Hab.—Southern Europe, North Africa, Eastern Atlas, (*Salvin*); Tuggert Sahara, (*Tristram*); Tangier, (*Drake*); Marshes of the Guadalquiver, Majorca, (*Saunders*); Sardinia, (*Brooke*); Palestine, (*Tristram*).

Mr. Salvin states that this species is common at Zana in the Eastern Atlas, but keeps out of sight in the tall reeds, and he imagined it was in the habit of eating the eggs of the various species of Duck which were breeding in the locality; and Canon Tristram relates that once he saw a bird of this species seize a young duckling in its huge foot, and after crushing the head with its bill, eat the brains, but did not touch the carcase.

Adult.—Sides of the head, chin, throat, and upper part of breast dark turquoise blue, brightest on the cheeks; occiput, back of neck, wings, back and tail, uniform rich dark blue; lower part of breast, flanks, and abdomen, blackish blue; under tail-coverts pure white; bill and head-shield, crimson; legs and feet, flesh colour. Total length, 19 inches; wing, 10·75; tail, 4; bill along gape, 1·75; width of head-shield at its posterior margin, 0·87 inch; tarsus, 3·75; middle toe and claw, 4·87 inch.

Young.—Rump dark brown; flanks brown, mixed with blue; breast, thighs, abdomen, and vent, brownish white; rest like the adult.

3.—Porphyrio bellus.

Porphyrio bellus, Gould. Proc. Zool. Soc. (1840), p. 176.—Id. Birds Austr., Vol. VI., pl. 70.—Id. Hand-l. B. Austr., Vol. II., p. 322 (1865).—Gray Gen. B., Vol. III., p. 598.—Schleg. Mus. Pays. B. Ralli., p. 58. (1865).—Finsch, Jour. für Ornith. (1872), p. 182.—Layd., *Ibis* (1877), p. 363, sp. 82.

Hab.—Western Australia, (*Gould.*); New Caledonia, (*Layard*).

There is no specimen of this species in the Paris Museum, all those from Australia belonging to the *P. cyanocephalus*,

Vieill. It appears to differ from the last-named by having the head blue, and the throat and chest a lighter blue, and in the *grass green* legs and feet, these last being red in its relative. In size the two appear to be about the same, the dimensions of the present species being fully equalled by those of specimens of *cyanocephalus* before me. Mr. Gould states it was abundant at Swan River and also the lakes and rivers around Perth and Freemantle. The male is somewhat larger than the female. The following is Mr. Gould's description of the type, now I believe in the collection of the Philadelphia Academy of Natural Sciences :—

"Head, neck, and all the under-surface deep blue ; sides of the face, front of the throat and chest, greenish blue ; back, wings, and tail, brownish black ; shoulder, and edge of the wing, and outer margins of the primaries, greenish blue ; under tail-coverts, white ; irides, bright red ; bill, red ; legs, grass green, except the knees (?), lower part of the tarsi and inside of the feet, which are dark greenish grey. Total length, 18 inches ; bill, 1·75 ; wing, 10·5 ; tail, 4·5 ; tarsi, 3·5 inch.

4.—Porphyrio calvus.

Porphyrio calvus, Vieill., Nouv. Dict. d' Hist. Nat. (1819); Tom XXVIII., p. 28. (ex Java).

Porphyrio indicus, Horsf. Trans. Linn. Soc. (1821). Vol. XIII, p. 194.—Eyton, Proc. Zool. Soc. (1839). p. 107.—Gray, Gen. Birds, Vol. III., p. 598.—Cass. Wilkes, U. S. Exp. Exped. (Ornith.), p. 308, (1858).—Schleg. Mus. Pays. B., p. 55. Ralli. (1865).—Finsch and Hartl. Faun. Central. Polyn. Aves., p. 170., pl. XII. fig. 2. (1867).—Wald. Trans. Zool. Soc. (1871). p. 92.—Salvadori. Uccel. Born., (1874), p. 342.

Porphyrio smaragdinus, Temm. Plan. Col., Livr. 71. (1827). pl. 421. (ex Java).—Gray, Proc. Zool. Soc. (1860)., p. 365.—Wall. Proc. Zool. Soc. (1863), p. 487.

Porphyrio samoensis, Peale, U. S. Expl. Exped. (1848). p. 220, (Ornith.) (ex Upolu, Samoa).—Finsch, Jour. für. Ornith. (1872), p. 55.

Porphyrio vitiensis, Peale, U. S. Expl. Exped. (1848). p. 221 (Ornith.). (ex Viti, Feegee).—Cass. U. S. Expl. Exped (1858), p. 309.—Schleg. Mus. Pays B., p. 55., Ralli (1865).—Gräffe, Jour. für Ornith. (1870) pp. 403-413.—Hartl. and Finsch, Jour. für Ornith. (1870), p. 135.—Id Proc. Zool. Soc. (1871), p. 27. (ex Tonga).—Layd. Proc. Zool. Soc. (1875), p. 439.—Id *Ibis*, (1876), p. 393.

Porphyrio melanopterus, Temm. M. S. (ex Ceram.)

Porphyrio aneiteumensis, Tristr., *Ibis*. (1876), p. 265, sp. 24. (ex New Hebrides).

Hab.—Java, Sumatra, (*Cassin*); Celebes, Timor, Banda, (*Wallace*); Bouru. (*Hoedt.*); Samoan Islands, Feejee Islands, (*Peale*); Kalai, (*Gräffe*); Tongatabou, Savai, Ovalou, (*Hartl.* and *Finsch*); Opalou (Voy. Astrolabe), New Hebrides, (*Tristram.*)

This species is generally known as *Porphyrio indicus* of Horsfield, but it was described two years previously by Vieillot, (l. c.) as. *P. calvus*, which is the name it should properly bear. The specimen in the Paris Museum, which I believe is Vieillot's type, came from Java. It is mounted, and of rather smaller dimensions than other examples from that island, but as this species varies greatly in size among the adult birds, even from the same locality, its measurements cannot be regarded as of any specific importance.

The *P. calvus* has received many names, some bestowed on account of the greater or less size among individuals, or from some slight and really unimportant variations in the hues of certain parts of their plumage. But when a fair series of these birds is compared, of individuals coming from many and even far distant localities, it is readily perceived that neither the dimensions nor colour of plumage are reliable, and that gradations from one so-called species to another are readily obtained. The most prominent synonyms of the *P. calvus*, besides *indicus* of Horsfield, are *samoensis* and *vitiensis*, Peale, and the lately-described *aneiteumensis*, Tristram, from the New Hebrides. With examples before me from Java, Celebes, Tonga, Viti, Upolu, and Samoa, I can perceive no characters that indicate more than one species, although the measurements among them are different, and the hues of their plumage vary slightly; but these are not confined to individuals from any particular locality, for birds from one island will vary from each other, especially in size, to a greater degree than they do from those of a different island. Mr. Cassin decided (l. c.) that the *samoensis*, Peale, was the same as the *P. calvus*, (called by him *P. indicus*), judging from Peale's types then before him; but permitted *vitiensis* to stand solely on account of its small size. Messrs. Hartlaub and Finsch also admit *vitiensis* as a distinct species, but not for its size, [which they say cannot be considered as a specific character, for while some are smaller than *P. indicus* (*P. calvus*), others are *larger*!], but on account of differences in its colouration, which "readily distinguish it."

In *vitiensis*, according to these authors, the mantle and the back are dark olive brown, with olive green reflexions, while in

indicus, (P. calvus), these parts are black with dark blue reflexions. In *vitiensis*, the greater wing-coverts, the scapulars, and the inner secondaries have a reddish olive hue, but in the other these are blackish olive brown.

In *vitiensis*, the outer webs of the primaries have pale blue reflexions, passing into pale green towards the ends, while in *indicus*, as called by them, the primaries are pale blue, and the secondaries dark blue, and the sides of the head and the breast is brighter.

Now, if the differences given above were observed, only in birds from very distant localities such as Java and Viti, it might possibly be supposed that there were two species; but in a series from various localities, such as is now before me, the slight distinctions enumerated disappear, and as regards their colouration, the specimens graduate into one another.

I find that examples from Celebes have a plumage intermediate between that described by Messrs. Hartlaub and Finsch as characterising the birds from Java and Viti, and exhibit the mantle and back blackish brown with greenish reflexions. The outer webs of the primaries are bluish green, and the greater wing-coverts are olive brown, with a greenish lustre. This at once shakes the belief that there is more than one species, for if the slight difference in colour between Java and Viti birds is sufficient to constitute distinct species, the Celebes specimens must represent a third, and it is not unlikely that every island in which these birds are found, might produce another style intermediate again, and thus many species be established on what is but merely phases of plumage of a single species with a wide distribution.

Two specimens from Opalu are the smallest of those before me, and have the backs pure olive-brown. These would probably be the *P. samoensis*, Peale. Canon Tristram (l.c.) has described the bird from the New Hebrides as a distinct species, differing from the *P. calvus* mainly in size, but I find specimens in the Paris Museum from Java with almost the same dimensions as those given for the *P. anciteumensis*, and cannot regard the measurements as indicating any specific character. The suggestion that Mr. Cassin gave his measurements from a specimen erroneously marked as coming from Samoa, because they agree exactly with the bird from the New Hebrides, is hardly likely, for Mr. Cassin states that there were several specimens in the collection made by the expedition, all of which came from the Samoan Islands, and he could not perceive "any character indicative of distinction in species" between them and examples from "Java, Sumatra, and other islands of the Malay Archipelago."

ZOOLOGICAL GARDENS
1875.
CALCUTTA



P. CALVUS. *Type* JAVA.



P. CALVUS. JAVA.
Larger Example

Believing that my materials are sufficient to give a tolerably correct idea of the specific value of the styles presented by the species in the various localities in which it is found, I am obliged to state that I can find nothing to indicate more than one species, possessing a slight difference in the dimensions and colouration of individual birds, and I have therefore placed all those forms described as distinct, among the synonyms.

According to Layard, this bird is pretty common and generally distributed in Feegee. It eats small fish, crabs, insects, sugarcane and berries, and to get the latter it perches on trees. It is easily kept in confinement, but rather dangerous to other birds, and a pair he had having been placed too near a cage containing some young parrots, drew them through the bars and picked out their brains.

The adult has the occiput, sides of the face and chin, black; mantle and sides of neck, flanks, breast, thighs and abdomen, (except in the centre), dark violet blue; shoulders of wings greenish blue; wings, green; primaries black, with the outer webs bluish-green, changing to emerald-green in certain lights; secondaries, bluish-black, the innermost ones with a greenish shade; back and upper parts blackish or olive brown, with dark blue or greenish reflexions; under tail-coverts pure white; bill, frontal plate, legs and feet, crimson. The anterior lateral portions of the frontal plate extending to the nostrils, orange in the skin.

In some specimens, the thighs are greenish-blue, like the shoulders, but this does not appear to be anything more than an individual variation, as others from the same locality have the thighs violet blue, as described above. The following are the dimensions of several individuals from various places :—

		Total length.	Wing.	Tail.	Bill along gape.	Tarsus.	Middle toe.
	Java	... 15·0	9·0	3·5	1·25	2·87	2·87
	,, ...	... 15·0	8·75	3·25	1·37	3·0	2·87
	,, *Type of calvus*	... 13·0	8·12	3·0	1·06	2·5	& claw 3·12
Gorontales.	*Celebes* ...	... 15·5	9·25	3·75	1·37	3·0	3·0
	,, ...	... 15·0	9·0	3·5	1·5	3·0	2·87
	Opalon (Peale)	... 17·2	9·4	...	1·7	3·2	3·1
	,, ...	... 15·62	8·75	3·75	1·37	3·0	2·87
Voy-Astrolabe.	*Samoa*	... 14·75	8·5	3·5	1·5	2·87	2·75
	Viti	... 14·5	8·75	3·75	1·37	3·0	2·62
	,, (Cassin) ...	... 13·0	8·0	2·5	1·25	2·25	3·0
	Tonga	... 14·5?	8·75	incomplete	1·25	2·75	2·75
	New Hebrides ...	... 18·5	9·4	3·6	1·35	3·5	& claw 3·75

A lithograph is here given of the heads of *P. calvus*, (type) and of another individual, both from Java to show variation in size.

5.—Porphyrio cœlestis.

Porphyrio cœlestis, Swinhoe, *Ibis*. (1868), p. 59.—Id. Proc. Zool. Soc. (1870), p. 428; (1871), p. 414.—David and Oust. Ois. de la Chine (1877), p. 484.

Mr. Swinhoe's description of this bird answers perfectly well for the P. CALVUS, with the exception that the *rump* is stated to be *white*. This is probably an oversight, and for *rump*, it should read, *under tail-coverts*. But if this is not the case, then it is certainly a distinct species, for there is no other *Porphyrio* known with a white rump.* I am inclined to believe that Mr. Swinhoe inadvertently committed an error, and as the individual described was living at the time in captivity, it was probably P. CALVUS brought from one of the islands in the Eastern Archipelago. The description of this bird is as follows :—

"Head, dusky grey ; sides of neck, flanks and belly, fine blue purple; throat, down to breast, turquoise blue, a patch of which also occurs across the shoulder-joint; *rump, white*; bill, casque and legs, brick red ; eyes crimson."

6.—Porphyrio chloronotus.

Fulica porphyrio, Linn. Syst. Nat. (1766), Vol. I., p. 258, sp. 5.—Gmel. Syst. Nat. (1788), Vol. II., p. 699.

Purple gallinule, Latham. Gen. Syn. Birds, (1785), Vol. III., Pt. 1., p. 254.

La Taléve de Madagascar, Buff. Planch. Enlum. No. 810.

Gallinula porphyrio, Lath. Ind. Ornith. (1790), Vol. II., p. 768, sp. 6.

? *Gallinula madagascariensis*, Lath. Ind. Ornith. Supp. (1801), p. 68, juv.

Porphyrio chlorynothos, Vieill. Nouv. Dict d'Hist. Nat. (1819), Tom. XXVIII, p. 24, pl. M. 20, fig. 3.

Porphyrio smaragnotus, Temm. Man. Ornith. (1820), Vol. II., p. 700.—Ayres, *Ibis*. (1859), p. 249, (1874), p. 105.—Finsch. and Hartl. Vög. Ost. Afr., p. 783.—Brehm. Jour. für. Ornith. (1871), p. 34.—Dress. B. Eur. Pt. 56, (1876).

Porphyrio erythropus, Steph. in Shaw's Gen. Zool., Vol. XII, p. 255 (1824).

Porphyrio madagascariensis, Gray. Gen. Birds, Vol. III., p. 598.—Blyth, Cat. Birds Mus. Asiat. Soc. (1849), p. 283.—Hartl, Jour. für. Ornith. (1860), p. 172 ; (1861), p. 272.—E. Newt. *Ibis*. (1861), p. 116.—Roch and Newt., *Ibis*. (1863), p. 173.—A. Newt. Proc. Zool. Soc. (1865), p. 836.—Schleg., Mus. Pays. Bas., p. 54. Ralli, (1865).—Boccage, Jour. für. Ornith., (1875), p. 299.

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* Partial Albinos in this group seem not uncommon ; I have seen *P. poliocephalus* with half the back white, and not long since a nearly perfectly white Coot (*F. atra*) was sent me from Kattiawar.—A. O. H.

Porphyrio smaragdonotus, Licht. Nomencl. Av., p. 97, (1854).—von Müll. Jour. für. Ornith. (1856), p. 228.—Gurn. *Ibis*, (1868), p. 469.—von Heugl., Ornith. Nord. Ost. Afr. (1873), Band. II., p. 1230.

Porphyrio ægyptiacus, Heugl. Syst. Uebers., p. 65, No. 672, (1856).—Hartm., Jour. für. Ornith. (1863), p. 231.

Porphyrio hyacinthinus, (*nec* Temm.) Shelley Birds, Egypt, (1872), p. 297.

Hab.—Africa, Madagascar, Natal, (*Gurney*); Mauritius, (*E. Newton*); Sardinia, (*Prunner*).

This species has been referred to the *Gallinula madagascariensis*, Latham (l. c.), but this does not seem to me correct. Latham's description is as follows :—"*G. purpureo-fusca, subtus cærulea, capite griseo-cærulescente, gula pectore humerisque viridibus.*" This does not answer for any species of *Porphyrio* known to me, although it may possibly be an immature specimen of the *G. poliocephala*, Lath. It certainly will not answer for the adult of the present species, and I have therefore adopted for it Vieillot's name of *chlorynothos* (lege CHLORONOTUS), which antidates Temminck's appellation of *smaragnotus*. Sykes gives this species as a native of the Deccan, but he of course intended to indicate the POLIOCEPHALUS, Lath., as the P. CHLORONOTUS is not found in India. It is a native of Africa, Madagascar and the Mauritius. It is stated to have been obtained once in the south of France, and twice in Sardinia, but its appearance north of the African coast can only be regarded as accidental. It is generally distributed throughout the continent of Afiica as far as the Cape of Good Hope. Anderson says it is rather scarce in Damara and Great Namaqua Land; not uncommon in the rainy season at Ondonga, and pretty abundant on the rivers Teoghe and Okavongo. Specimens vary in their dimensions, as is the case with other species of this genus, but these slight differences cannot be considered as having any specific value. Messrs. Roch and Newton state that this bird is very common at Tarafata and Foule Point in Madagascar, and that their flesh is much prized for the table. In the colony of Natal, according to Gurney, this species is pretty generally distributed. During the winter it leaves the high reeds in the mornings and evenings to catch the sun's rays, and perches on clumps of reeds. It feeds upon the soft parts of the shoots of reeds and other water plants. If there is any difference between the sexes, the female is a little the smaller.

Adult.—Occiput, back of neck, lower part of breast and flanks, deep rich blue; sides of face and neck in front, throat and upper part of breast, turquoise blue, apparently lightest in

specimens from Madagascar; back and rump, grass green; wings, bright blue; inner webs of primaries and secondaries, black; tail, black; the outer webs washed with dark green; under tail-coverts pure white; bill, frontal plate, legs and feet, bright red; iris, brown. Total length, 16·75 inch; wing, 9·75; tail, 4; bill along gape, 1·5; width of head-shield at its posterior margin, 0·81; tarsus, 3·37; middle toe, 3·5; claw, 1 inch.

Young.—Back olive green, and the under parts blotched and spotted with white.

7.—Porphyrio poliocephalus.

Gray-headed Gallinule, Lath. Gen. Syn. Supp., Vol. II., p. 375 (1785).

Gallinula poliocephala, Lath. Ind. Orn. Supp., p. 58.

Porphyrio poliocephalus, Vieill. Nouv. Dict. Hist. Nat. (1819), Tom. XXVIII, p. 39.—Gray Gen. Birds, Vol. III., p. 598.—Blyth, Cat. Birds, Mus. Asiat. Soc. (1849), p. 283.—Irby, *Ibis,* (1861), p. 246.—Jerd., Birds Ind., Vol. III., p. 713 (1864).—Blyth, *Ibis,* (1867), p. 171.—Beav, *Ibis.* (1868), p. 395.—Holdsw., Proc. Zool. Soc. (1872), p. 475.—Lloyd., *Ibis,* (1873), p. 418.—Legge, *Ibis,* (1874) p. 31.—Ball, Str. Feath., (1874), Vol. II., p. 432.—Blyth, Birds, Burma, (1875), p. 161.—Butler, Str. Feath., Vol. IV. (1876), p. 20.—Hume, Str. Feath., VI, p. 464, (1878.)

Porphyrio smaragnotus, Sykes. (*nec* Tem.) P. Z. S., 1832, 165.

Porphyrio neglectus, Schleg. Mus. Pays B., p. 53, Ralli, (1865).—Hume, Str. Feath., Vol. I. (1873), p. 249, Vol. II., (1874), p. 483.—Oates, Str. Feath., Vol. III. (1875), p. 185.

Hab.—Throughout all India and Ceylon (*Jerd.*); Eastern side of the Bay of Bengal to the Tenasserim Provinces, (*Blyth.*), Common in Sindh and Kattiawar, less so in Cutch, rare in Jodhpoor, (*Hume*); Mount Aboo and Northern Guzerat, (*Butler*); Deccan, (*Syke*); Oudh and Kumaon (*Irby*); Upper Pegu, (*Oates*); Southern Ceylon, (*Legge*).

This is the species described by Latham, first as the "Gray-headed Gallinule" (l. c.), and afterwards as *Gallinula poliocephala,* (l. c.). He does not at all describe the Philippine bird named P. PULVERULENTUS by Temminck, which in the colour of its plumage has very little resemblance to the present species. Schlegel (l. c.) has called the birds of "Inde continentale depuis le Nipaul jusqu'au Cap Comorin," *P. neglectus,* and has given Latham's name to the Philippine bird; but Latham says in his Synopsis (l. c.) that the *back* of POLIOCEPHALA, (as he



terwards called it), is *purple*, and as this properly characterises the Indian bird, and not at all the Philippine, which has the back a reddish olive brown, it would seem that Schlegel was in error in giving the present species a new name, and I have therefore placed his *P. neglectus* among the synonyms given above.

The habits of this species, having been already recorded in STRAY FEATHERS, and as it is a bird doubtless well known to all Indian ornithologists, it is not necessary for me to say anything about them.

Adult.—Occiput and nape, space around the eyes, and lores, grey, tinged with purple; back of neck, back and rump, purplish-blue, varying somewhat in shade between dark blue and purple according to the light; cheeks, chin and throat, purplish-grey, passing into a dark turquoise blue upon the lower part of the neck and breast; wings, pale greenish-blue; inner webs of primaries and secondaries, black; lower part of breast, flanks, abdomen, vent and thighs, dark purplish-blue; tail, black, edged with blue on the outer webs; under tail-coverts, pure white; bill, red; the culmen for three-fourths its basal length, and a spot at base of each mandible, dark blood-red; head-shield, cherry-red; irides, brick-red; legs and feet, pale brick-red to crimson. Total length, 18 inches; wing, 10; tail, 4·5; bill at gape, 1·62; width of head-shield on posterior margin, 1·12; tarsus, 3·62; middle toe, 3·62; claw, 1 inch.

8.—Porphyrio edwardsi. Plate.

Porphyrio edwardsi, Elliot. Ann. and Mag. Nat. Hist. (1878), p. 98.

Hab.—Cochin-China, Saigon, (*Germain*); Bankok. (*Bocourt*).

Four specimens of this handsome bird, (upon which I have conferred the name of *edwardsi*, in compliment to my friend Prof. A. Milne-Edwards, so well known for his important contributions to Natural History), are contained in the collection of the Paris Museum, three adults and one young bird. Two of the adults are precisely like the figure in the accompanying plate (the type); the third is a little paler upon the sides of the head, but all possess the uniform greenish-black back and wings. The *P. edwardsi* differs from *P. poliocephalus* in being darker on the back of the head, in having the blue of the breast of a darker shade, and specially in having the upper parts, including the wings, greenish-black, instead of the purple back and rump, and greenish-blue wings of *poliocephalus*. This colouring of the upper parts is so conspicuously different in the two species that either can be recognised at a glance.

As it is not at all improbable that this species may be found to inhabit some portions of the Tenasserim provinces, I am happy to bring it prominently before Indian Ornithologists, through the medium of the accompanying beautiful plate.

Adult.—Ear-coverts, lores and space round the eyes, greyish white; back of head, brown, darkest in the centre, where it is almost a brownish-black, with a purple tinge, shading off to a greyish-white towards the head-shield, and the sides of the head; cheeks, bluish-white; chin and throat, brownish, with a bluish shade; back and sides of neck, lower part of breast and flanks, dark violet blue; front of neck and upper part of breast, shoulders and under wing-coverts, deep turquoise blue; back, rump, wings, secondaries, primaries and tail, uniform greenish-black; middle of abdomen and crissum, brownish black; under tail-coverts, pure white; bill, head-shield, legs and feet, apparently bright red. Total length, 16·25 inches; wing, 10·75; tail, 4·25; bill along gape, 1·25; width of head-shield at posterior margin, 0·87; tarsus, 3·37; middle toe, 3·75; claw, 0·75 inches.

Young.—Top and back of head covered with downy black feathers; sides of head, grey; chin and throat, white; breast, dark turquoise blue; flanks and abdomen, violet blue; crissum and thighs, brownish-black, streaked with white; wings and middle of back, greenish-black; rump, brownish-black; bill red, with the culmen and spots on the mandible, black; head-shield small, apparently red. Total length, 10·5; tarsus, 2·75; bill at gape, 1 inch.

9.—Porphyrio pulverulentus.

Porphyrio pulverulentus, Temm. Plan. Col., Livr. 68., No. 405.—von. Mart. Jour. für Ornith. (1866), p. 29.

Porphyrio poliocephalus, Schleg. Mus. Pays. B. Ralli., p. 54. (1865).

Hab.—Philippines.

This is a very fine and handsome species, perfectly distinct from the Indian bird, whose name of *poliocephalus*, Prof. Schlegel has for some unaccountable reason bestowed upon it. The two, when placed side by side, have really no resemblance whatever to each other. The present species is apparently extremely rare in collections, the type in the Leyden Museum figured by Temminck, and a specimen in the Paris Museum, being all that are known so far as I am aware. It is a native of the Philippines, but of which particular island or islands has not yet been ascertained.

Adult.—Head, neck and breast, greyish-blue, darkest on back of neck; back, rump, tail and innermost secondaries, dark red-

dish-brown, the feathers mostly tipped with olive-green; wings ultramarine blue; secondaries (except the innermost already mentioned) and primaries are black on their inner webs, greenish-blue on their outer; abdomen, flanks and thighs indigo blue; under tail-coverts white; bill, head-shield, legs and feet red. Total length, 18 inches; wing, 9·5; tail, 3·5; bill at gape, 1·5; width of head-shield at posterior margin, 0·87; tarsus, 3·25; middle toe, 3·37; claw, 0·75.

After the Adjutants.

By C. T. Bingham.

To the south-east of Moulmein, about twenty-five miles up the Attaran River, a low but excessively steep and scarped range of limestone rocks, called the Needong hills, run nearly at right angles to the river on the north bank, and overhanging the water present a strikingly bold and picturesque outline. On the south bank this range is broken into four or five isolated masses rising abruptly from the surrounding plain.

In the latter end of November and in December these almost inaccessible cliffs afford safe nesting sites to the two species of Adjutants, *Leptoptilus argala* et *javanica*.

Last January, twelvemonth, while going up the Attaran River on a shooting trip with a friend, I had seen the Adjutant in immense numbers feeding their young on the topmost pinnacles of these rocks; and, concluding from this that their laying time must be some time in November or December, I there and then determined to make a raid on their nests at the end of the year. Detained by my duties in the frontier forests till the first week in November, and having on my return to Moulmein a lot of work to do, I began to fear that for this year I should be unable to carry out my project.

However an opportunity at last presented itself on the 27th of November. Mr. K., a botanist *en-route* to Penang and Malacca, happened to touch here and put up with my "Chief." The steamer on board of which he was a passenger being likely to be detained here four days, Mr. K. expressed a wish to make a trip to some of the limestone hills in the vicinity of Moulmein in order to investigate their botany.

As some one had to accompany him, I was deputed to the task, and was only too delighted, as it would enable me to carry out my long-cherished scheme against the Adjutants. I went and saw Mr. K. and settled preliminaries. A Kalah, or

Chittagong boat, was engaged, and directed to row over night to Nanteh, a village some eight miles up the Attaran, as by our going overland to Nanteh and starting from there on the morning we saved a bend of the river and a hard pull of four hours. As I expected the tide to serve at Nanteh at 6 A.M. I had hoped to have got off with Mr. K. by 4-30 A.M., but as it happened, one delay after another detained us, and it was 7-30 before we were fairly off. Mr. K. and myself in one gharry, and two gharries in front filled up to the windows with Mr. K.'s tent, bedding, drying-presses, portmanteaus, &c. I myself only took my bedding, guns, and ammunition, and a few stout ropes to help me up the rocks. A native taxidermist accompanied me, who had in his charge skinning apparatus, arsenical soap, paper, &c.

Time works wonders, and by his good help even a Moulmein gharry and pony accomplished the four miles by road to Nanteh in something over an hour and a half. Arrived here, by good luck, for nothing seems to be carried out punctually in Burmah, we found the boat I had despatched over night awaiting us, and so immediately proceeded to stow away our things, and the three servants we were taking with us. While I was attending to this seeing, that the bedding was spread comfortably for us to recline on, it being an impossibility in these boats to sit on a stool or chair, Mr. K. began teasing a handsome tame Peacock which was strutting about near the village; and ere I had finished my arrangements, had concluded the fourth and last round of a single combat with it. As Mr. K. was a very little man, it was an open question as to which would win, and I looked up rather anxiously from the boat to see whether the fight was going to be continued, as in case there had been another round I should, I think, have backed the Peacock.

Poor K., he was one of the best fellows I have ever met, and has since, I very much regret to say, fallen a martyr in the cause of his beloved science.

Everything being at last arranged and stowed away, we got in and shoved off, carrying up with us the very last of a very weak flood. The morning was bright and fresh, a gentle breeze was blowing down the river, and all Nature was thoroughly alive. Bright Kingfishers (*Pelargopsis burmanica, Halcyon smyrnensis*, and *pileata*) flashed among the mangroves lining either bank, or flew across the river in front of our boat, with harsh chattering screams. Tall Snow-white Egrets stood in retired nooks on the muddy shore, while underneath the banks, in the thick covers of the mangroves, skulked the solitary Waterhen (*Gallinula phœnicura*). High over head the large

Paroquet (*Palæornis magnirostris*), in parties of four and five, skimmed with wild shrill screams swiftly from bank to bank, while lower down large numbers of crows (*Corvus insolens*) with lazier flight, were winging their way to their hunting grounds in the city. *Corvus insolens*, by the way, is a strictly town bird; you only meet with him in the towns or large villages where in mischief, insolence, and the ability to produce diabolical noises, when a fellow wants to sleep or work, he equals if not surpasses his paler brother of India.

On either side, as seen from our boat, the banks seemed lined with thick jungle stretching away unbroken on the right to the Tongwine hills, and on the left to the limestone peaks of Dalmatteah on the Gyne river, while above and beyond these, and lost in the faint morning haze, rose the far distant ranges on the Upper Gyne and Houngraw Rivers.

Admiring scenery from a Kalah or Chittagong boat is a difficult matter. You cannot sway your body the slightest bit to the right or left, but the boat lurches and wriggles about in a most annoying manner. They are heavy unweildy crafts these boats, and yet they are the chief means of transit on the long-winding rivers in Tenasserim.

Immensely long, narrow, and round-bottomed, they are hollowed out of single solid logs of Thengan *(Hopea odorata)*, and have their sides raised by a planking of teak. From near the stern to about half way they are boarded so as to make a sort of deck with lockers underneath; while as protection from sun and rain, a low awning of bamboo matting, supported on half hoops of strong cane, covers over the whole of the boarded portion. In front of this deck, and nearly to the prow, thwarts are placed across, and one lengthways for the rowers to sit on, a small bit in the extreme front being also formed into a locker by boarding above. Our boat crew consisted of five men, four to row and one to steer and direct, the rudder used being a clumsy heavy paddle. The oars also are long, heavy and massive, being passed through loops of cane on the gunwale and not over rullocks.

Ordinarily the crew of one of these boats consists of three men, but I had specially bargained for four rowers, and it was well I did so, for before we arrived abreast of the village of Kylmyan eighteen miles up, the tide turned against us, and it was only by hard pulling we got within sight of the Needong rocks by 12 o'clock, and we did not get ashore till past 1 o'clock.

As we passed under the hill overhanging the left bank of the river, I was delighted to see the Adjutants in full force, two or three crowned each pinnacle, and here and there through the green foliage showing white against the blue rock, I could see

the large guano-soiled masses of sticks which composed their nests.

Mr. K. was eager to land and commence botanizing at once, and I myself was anxious to essay the climb, but prudence whispered the necessity of seeing to our encamping ground for the night, and buying materials for our dinner, so we went on for half a mile or so to the village of Needong, which consisted of a score or so of bamboo-built houses, raised on posts after the manner of the country, and stragglingly built for a mile along the south bank. Landing, we walked to an inviting-looking bamboo grove, underneath which, as there was perfect shelter from the sun, orders were issued to pitch the tent, while Moung Shway Hameyah, a Burman we had brought with us as interpreter, was despatched to the nearest Karen house for a couple of guides. Whilst waiting for these I examined through my binoculars the nearest limestone hill, an isolated peak about a mile and a half off, and I was pleased to see two Adjutants standing on a conspicuous rock, with a whitish patch near them, which I took to be their nest. As Mr. K. was indifferent to what limestone hill we should go first, and this was nearest, we determined to make our preliminary excursion thitherwards. Having given orders to the cook about the purchasing of fowls and our dinner, and Shway Hameyah having returned with the two guides, I proceeded to explain to them that we wished to get to the top of that hill, pointing at it. At first they shook their heads and declared it was impossible; but seeing we were determined to attempt it, and being further tempted by the promise of a liberal reward, one of them admitted that he knew of a spot on the north side where it was just possible to scramble up by help of roots and trees.

This matter having been satisfactorily decided, one of the two guides had a basket made over to him, and told that he must keep close to Mr. K. To the other I gave my bird stick, carrying my gun myself.

The road at first lay across wet paddy-fields, and the only birds flushed were Tit Larks (*C. rufula*) and a Paddy Bird or two (*Ardeola grayi*); but just as we got to the end of the fields, a sudden rise and "scape" announced the departure of a Snipe—no doubt the common Snipe of these parts, a Pintail (*Gallinago sthenura*); he was far away before I could get my gun to bear on him, and dropped among some trees to the right.

Having got clear of the paddy, we entered a gently undulating plain covered with dense evergreen bushes and a few small bamboo clumps. Closer in to the hill we got into a denser and more matted belt of evergreen that surrounded its base, from which the rocks rose sheer and abrupt towering above and

hanging over each other in most fantastic shapes. It was with some difficulty we worked round towards the north side of the hill, as besides the thickness and thornyness of the jungle the ground under foot was spongy and moist to a degree. However at last our guide stopped, and pointing to a sort of rough gap between two of the lower large rocks, said this was the spot to attempt the climb—and a very nasty break-neck looking spot it was, and I didn't half like the look of it all, more betoken I had foolishly left my ropes at the camp. However there was no help for it, and my mouth was watering to see the number of Adjutants wheeling above the hills, all or most of which had probably nests somewhere on the top.

As to K. he gazed hopelessly up, and then declared he would leave the honor of the ascent solely to me, and would himself mouse about at the foot for lichens and algæ.

There being no time to lose, I took off my coat, tightened my belt, and taking only my gun, already loaded, with a cartridge of No. 1. shot in each barrel, and slung on my back to leave my arms free, I requested my Karen guide to lead on. And lead on he did straight up the face of the rock, clinging on to roots, and projecting knobs of rock in a marvellous manner. I did my best to imitate and follow, but had several times to shout to him to wait for me; and was soaked through with perspiration, and blowing like a broken-winded horse before I got to the first nest which was placed on the flat surface of a block of rock nearly at the top of the hill. A hasty glance at it showed me four eggs resting on a mass of twigs and sticks with scarcely any depression in the centre, and unlined. Below this was a substructure of larger sticks; the whole mass, and the rock on which it was, whitened by the droppings of the birds—the eggs, large white ovals, chalky, stained, and dirtied, as like as possible to eggs of the Common Vulture (*Pseudogyps bengalensis*). Having secured this prize, I looked around and saw that there were no less than eight other nests in sight, and in three I saw eggs. These also I managed to secure, although the way over the rocks was rough and jagged in the extreme, and once I had to swing myself over a low cliff of about fifteen feet by a root. One nest out of the three contained two eggs, the other two, one each; in these the eggs were fresher and whiter, the nests themselves being similar to the first described.

A little further climbing brought me to the highest peak of rock on the hill, and here I sat down for awhile to enjoy the scene and cool myself. In front of me, and seemingly at my feet, lay the Attaran winding like a silver thread, between walls of green forest, and losing itself round the corner of the next range of

limestone rocks beyond the village of Ngabeemah. Far to the north and west I could see the Gyne and Salween with their forest and mountains standing clearly out in the rays of the western sun, while behind me the unbroken jungle stretched away till lost in the meeting of earth and sky; and more to the left, as I turned round, appeared range upon range of these wondrous limestone rocks, giving a glimpse over their crests, and between them, of the "meeting of the waters" of the Zamee and Winyeo streams (called, after their junction, the Attaran), and the jagged crest of the mightiest range of all the limestone hills—the Atlantea on the Winyeo River.

And now as the sun was sinking rapidly, I had to think about getting down. So stowing three eggs in my pockets and four in my handkerchief, I gave the Karen my gun, which by the way I found useless, the Adjutants wheeling about but keeping out of killing range; however I managed to identify them as *Leptoptilus argala*, all of the larger kind, and began the descent. But if the ascent was ticklish, this was simply diabolical. Several times I barked my ellows and knees, and twice or thrice stopped to see whether the eggs were not broken. Never was way so long, but down I got at last, and miraculously the eggs were safe. How thankful I was I need not say, for I was rather exhausted.

I found that K. had his basket nearly full, and was ready to start back, so off we went making tracks, like one o'clock, for the "shades of night were falling fast." *En route*, I shot a grand specimen of *Myiophoneus eugenei*. Arrived at camp, a bath, a good dinner, and a pipe, sent me to bed a happy and contented man.

Poor K., who had been expecting an attack of fever, he had been suffering from jungle fever, quite cock-a-hoop that he had escaped it for that night, retired about 9 P.M. Alas! for his triumph, it came on about 12 o'clock, when hearing him moving about I roused myself, lit a candle and went over to his tent. I found the poor fellow seated outside on a log, and he told me he had had his cold fit, and was now feeling burning hot. After some persuasion I got him to turn in again, and after a little while retired to my own bed, when I lay awake for a long time listening to the "voices of the night." If the moonlight nights are calmly and peacefully beautiful, how sublimely grand the dark nights are, when in the depths of the forest surrounded by mighty trees, one realizes that darkness which can be felt, and a weird and awful calm enhanced by the unfrequent cry of some night bird, or prowling beast.

Slowly hushed by the murmur of the passing waters in the river I fell asleep, and only awoke when light was dawning

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in the east. Having washed and dressed, I walked over to K.'s tent and found he had got up; and, though feeling extremely weak and ill, was determined to try the hills on the opposite bank. Breakfast was first the order of the day; that finished, and all things packed, (for we did not intend to come back) we took boat and set off down the river a little.

I had by much questioning ascertained from our guides that the most accessible point was on the south-west side of the hills, which consisted of six or seven peaks joined by a continuous knife-like ridge. Passing the overhanging rocks, we landed as soon as we could find a suitable spot for getting on shore, as the tide was out, and there was a long reach of deep mud to get across. A walk of ten minutes across old deserted gardens overgrown with kyne grass, and past a ruined hut, put us at the foot of the hill.

Here we found that the path up the rocks, for there actually was one at this place, used by the Karens for getting to the caves where the honey bee builds its combs, presented as rugged a climb as the hill of yesterday. For Mr. K. in his weak state it was impossible to get up, but for me I had the whole day before me, and determined to do it leisurely, collect the plants for Mr. K., eggs for myself, and search particularly for *Turdini* which I knew frequented these rocks.

Leaving one Karen with Mr. K., and taking with me a basket for plants, my gun, bird stick, and a few cartridges, I started. At first the road was easy enough, but about a third of the way up we came to a non-plus, at the foot of a very steep cliff. Here, while my guide was searching about for the lost track, I set to work to collect a few plants.

"Chucka—chucka—chucka"—and a flock of little brown birds came down the hill flitting in and out of the holes in the limestone, and disappearing in a mysterious manner.

Before, however, they had scrambled quite out of sight I managed to shoot two; they proved to be *Turdinus crispifrons*. I had just slung these on to the bird-stick, when my guide returned and informed me that he could find no path up. I looked at the cliff in front, a root of some species of *Ficus* hung from the top to within six feet of where we were: as it would never have done to turn back, I slung my gun and bird-stick, and giving the basket of plants to my follower, began the climb; and a fearfully tough struggle it was, but I succeeded. What a sight burst on my eyes! Right in front of me, the face of the rock for a considerable way, right and left, was covered with a lovely pink orchid (*Callanthi rosea*) flowering in the wildest luxuriance. After waiting awhile to take breath

and collect a good lot of these, we went on again; and thus stopping now and then to collect plants and then desperately working up we got by degrees to the top. This hill was, if possible, more difficult to get about than the one climbed yesterday: the limestone being worn into a series of the most acute needle points, and sharp knife-like ridges exceedingly trying to one's feet.

At the top I found three more nests of Adjutants similar to those of yesterday, with eggs. One bird I fired at, but after sailing off apparently unhurt, I saw it fall a long way out in the forest.

I was much struck by a curious noise the Adjutants made when disturbed, a sort of loud grunting croak, not unlike the low of a buffalo.

Slowly I worked my way along the ridge, rapidly filling my basket with plants; and finding several fresh but empty nests of the Adjutants. One pretty brown-spotted yellow Orchid* I found hanging in a tuft overshadowing one of the nests.

The sides of the whole little range of rocks was covered with evergreen, and several clumps of a pretty feathery light looking bamboo.

The scenery presented a picture very similar to that of yesterday, but the Attaran river was more directly under my feet; and indeed I climbed on to a projecting rock, and peeping very carefully over, I found that had I wished to take a header of some 300 feet or so I could plunge sheer into the Attaran.

After wandering about for two or three hours I became hungry, and thinking of tiffin began the descent, having carefully stowed away the eggs, and luckily, as will be seen presently, made them over to the Karen guide to carry. Oh what tedious work it was getting down, the sharp rocks cutting my boots to pieces and tearing my clothes, and just below the place I had got the pink Orchid I was let down with a run, by the breaking of a root to which I was hanging, and so bruising rather severely my right leg. However, all things must have an end; and, though I had to crawl down very slowly and in great pain, I got down at last; and cheered by the knowledge of the eggs having been brought down all safe and sound, and the prospect of tiffin, I limped my way to the boat in good spirits.

At the little ruined hut, I was distressed to find poor K. down with fever, and feeling altogether very weak and ill. He roused himself, however, at the sight of my basket of plants and set to work pressing them.

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* Probably *Cypripedium concolor*.—Ed., S. F.

Tiffin over, of which poor K. partook but sparingly, and there seemingly being little hope of his getting rid of his fever here, I proposed returning to Moulmein; and, accordingly, as soon as the tide served, we paid off our Karen guides, took to our boat, and by 9 P.M. were back in town. Thus ended a most enjoyable trip to me, but for poor K.'s illness.

A second* list of the Birds of Southern Travancore.

My friend, Mr. Bourdillon, has most kindly sent me a second small collection of birds from Southern Travancore, which contains several species of much interest, and I shall, therefore, not hesitate to give a list of all those not contained in our first list (though these are only 28 in number), together with a few additional remarks on species previously included.

The most important of the specimens contained in this collection are one of Jerdon's long lost species, hitherto supposed to be nothing but Cetti's Warbler, but now proved to be a perfectly good and distinct species, *Schœnicola platyura*, two of *Trochalopteron fairbanki*, and one of *Callene albiventris*, hitherto supposed to be peculiar to the Pulneys, and one of *Merula kinnisi*, similarly till now believed to be restricted to Ceylon.

In the subjoined list, species whose names are printed in antique type are new to our list; those printed in roman were included in our first list.

24.—Accipiter nisus, *Lin.*

A nearly adult female; wing about 9·4.

36.—Spizaetus nipalensis, *Hodgs.*

A fine young male of this species is sent. The dimensions recorded in the flesh were as follow :—

Length, 27·5; expanse, 53; tail from vent, 12·5; wing, 16·5; tarsus, 4·25; bill from gape, 2·0; width at gape, 1·25; crest, 3·75.

The bill and claws were black; the cere and feet yellow; the irides yellow.

37.—Lophotriorchis kienerii, *Gerv.*

An adult, perfectly black above, and, except the chin and throat, deep rufous, a little streaked with black, below; sexed a female; wing, 15·7; tarsus, 3·0. Mr. Bourdillon remarks :—

* For first list, see S. F., IV., 351.

"This Eagle, which was given me by a friend, was shot at an elevation of about 2,200 feet, while in the act of swooping at a chicken. Near at hand, however, were high precipitous cliffs, rising to an elevation of fully 5,000 feet, where the bird probably had its home. Not long after obtaining this specimen an Eagle flew past me, while I was riding, which, from its deep chestnut-colored belly, I have no doubt belonged to this same species."

58.—Circus pygargus, *Lin.*

"This species" (says Mr. Bourdillon) "seems to be rather solitary in its habits. I observed it for the first time last year, and then only saw three or four singly hawking over grassy and rocky ridges."

53.—Circus melanoleucus, *Forst.*

An immature female; but with the unmistakeable long tarsus, 3·18 in length.

75 *quat.*—Scops malabaricus, *Jerd.*

Three nestlings, which I believe unquestionably belong to this well-marked species, have been sent. These were brought to him, Mr. Bourdillon says, when still entirely in down, and kept alive for some time in hopes of securing a record of their changes of plumage as they advanced to maturity. Unfortunately they were allowed to die by the carelessness of servants during a temporary absence from home before they were even fully fledged.

I think that Mr. Sharpe is wrong in uniting this species with S. *indicus*, Gm. (*vide* S. F., Vol. V., p. 135,) and these specimens are certainly unlike any stage of that species, of which I have seen simply hundreds in every possible stage of plumage.

96.—Chaetura indica, *Hume.*

Mr. Bourdillon says: "This species is abundant at all times of the year when the weather is fine and clear, and during the early showers of April a flight of Swifts is a pretty sure indication of the approach of a storm. The flight of these Swifts is magnificent; their speed almost incredible; the rushing noise made as they dart through the air quite startling. I was much interested the other day in watching a flight of these Swifts feeding on a crowd of Termites that, as is usual at this time of the year, were swarming up from their underground nest. I was close enough to see that at the instant of capture the Swifts detached and rejected the wings of their prey."

117.—Merops viridis, *Lin.*

This, though not previously sent, appears, as might have been expected, to be common.

224.—Arachnothera longirostra, *Lath.*

I am not aware that this species has as yet been recorded from Ceylon. Indeed the present is the most southern locality in India where I know it to occur. Mr. Bourdillon records the following :—

Female.—Length, 5·5 ; expanse, 7·37 ; tail, 1·43 ; wing, 2·38 ; tarsus, 0·62 ; bill at front, 1·35. Bill, black above, below pale horny ; legs, feet, and claws, pale slatey blue ; irides, dark brown.

This specimen was procured on the 24th of November.

264.—Tephrodornis sylvicola, *Jerd.*

Of this species, rare I believe in collections, Mr. Bourdillon has recorded the following measurements :—

Male.—Length, 8·25 ; expanse, 13·38 ; tail, 3·12 ; wing, 4·5 ; tarsus, 0·78 ; bill from frontal bone, 1·1.

Female.—Length, 8·0 ; expanse, 13·5 ; tail, 3·5 ; wing, 4·5 ; tarsus, 0·8 ; bill as before, 1·05.

270.—Grauculus macei, *Less.*

This also seems not uncommon ; the birds belong to the somewhat smaller race that Blyth separated as *G. layardi*, but which are not really entitled to specific separation. (See S. F., II., 204.)

309.—Cyornis pallipes, *Jerd.* S. F., IV., 397.

This species is said by Mr. Bourdillon to be not rare, although nowhere common, in all heavy jungle from 1,000 feet and upwards.

339 *bis.*—Callene albiventris, *Fairb.* S. F., V., 402.

The same remarks apparently apply to the present species.

360 *bis.*—Merula kinnisi, *Kelaart, Blyth.*

This species, says Mr. Bourdillon, is not uncommon in the dense scrub jungle at the extreme summits of the hills, but it never, he thinks, descends below 3,000 feet elevation.

The Ceylon Blackbird so closely resembles *M. simillima*, of the Nilgheris, that it may at first sight be supposed that I am in error in this identification, the more so that the Travancore birds are rather larger than the typical Newera Elia ones.

The only differences that I can discover between the two species are that *kinnisi* is smaller—wing about 4·5 against 5·0 in *simillima*, and that it is also distinctly darker in colour above and below. Blyth, in the *Ibis*, 1867, p. 304, gives the following description :—

"*Male.*—Jet black, with orange-coloured legs, bill, and orbital skin.

Female.—Above ashy-black, below rather paler; bill and feet bright yellow.

Length about 9 inches; wing, 4·5 inches; tail, 4 inches; bill to gape, 1·82 inches; and tarsi, 1·82 inches. First short primary 1·25 inches shorter, and second 0·5 inches shorter than the fourth, the last character distinguishes this species readily from *M. simillima* of Southern India."

Now I must say that I do not think that the male can properly be called *jet* black. It is no doubt much darker than the Nilgheri birds, but it is never more than slatey black. As to Blyth's dimensions for the primaries, these are all wrong. Taking a series I find that the 1st primary averages 2·55 inches shorter than the 4th, and the 2nd, 0·6, and the 3rd, 0·1. Moreover, this is much the proportion of the primaries that exists in *simillima*, and it is not at all possible to separate the two species with reference to this point.

The Travancore bird is as dark as any of my Newera Elia ones, but it is slightly larger, the wings measuring 4·7, while in my Newera Elia birds the wings only vary from 4·45 to 4·6.

390 *bis.*—Alcippe bourdilloni, *Hume.* S. F., IV., 485.

Another specimen of this interesting species precisely resembles the type. It is a female, and measured in the flesh—Length, 5·24; expanse, 6·5; tail, 1·89; wing, 2·25; tarsus, 0·9; bill from frontal bone, 0·63. Bill, above black, below pale slatey; legs and feet dull brown; irides, white.

423 *bis.*—Trochalopteron fairbanki, *Blanf.* S. F., III., 413; V., 404.

This species, Mr. Bourdillon tells us, is found in the same places as *M. kinnisi*, and is there pretty abundant. He records the following dimensions of two specimens :—Length, 8·5, 8·75; expanse, 10·28; tail, 3·5, 3·62; wing, 3·25, 3·32; bill from gape, 0·9, 0·98.

Judging from the description (for I have never yet succeeded in obtaining a specimen of the Banasore bird), *fairbanki* differs from *T. jerdoni* in having no bluish tinge on the head, in having the feathers of the foreneck and breast more or less con-

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spicuously dark shafted, in not having the ear-coverts whitish, and in having the under tail-coverts ferruginous like the abdomen and not olivaceous as *jerdoni* is said to have. I feel by no means certain that the two will prove to be really distinct.

The Travancore hill birds seem to differ slightly from the Palni birds; the crowns are not nearly so dark; the ear-coverts are browner, the sides of the neck olivaceous and not grey as in the Palni birds; and the throat and upper breast are much paler, almost white in fact, and much more conspicuously paler shafted. I have not a sufficient series to enable me to determine whether these differences are constant and sufficient to warrant their separation, but I am inclined to doubt it.

442.—Schœnicola platyura, *Jerd.*

The re-discovery of this long lost species is one of the most interesting results of Mr. Bourdillon's labours.

He obtained one specimen, a female, on the 18th April in open grass land at Colathoorpolay Patnas, at an elevation of 3,800 feet in the Assamboo Hills, the southernmost section of the Western Ghâts, in fact about three degrees due south of Goodalore where the lost type and hitherto unique specimen was obtained, and in what is virtually a continuation, though broken, of the same range of hills.

The specimen measured in the flesh:—

Female.—Length, 5·75; expanse, 8·0; wing, 2·5; tail, 2·5; tarsus, 0·88; hind toe and claw, 0·6; claw only, 0·29; mid toe and claw, 0·85; inner and outer toes equal without claws, and without claws, exactly equal to middle toe without claw and terminal joint; claw of inner toe larger than that of outer toe; 3rd, 4th, and 5th quills equal, possibly 4th a shade longer, 2nd quill 0·4, and 1st quill 0·9 shorter than 4th. Vible portion of 1st quill, 0·8 long and about 0·2 wide. Tail of *ten* feathers (in this specimen, and none seem wanting); feathers soft and very broad, much rounded; two central pairs about the same length, the three succeeding pairs each 0·25 shorter than preceding; the lower tail-coverts are very full and lax and extend just to the tips of the shortest tail feathers, or to within 0·75 of the end of the tail. Bill almost precisely like that of *Dumeticola affinis*, (to which the whole upper surface bears a strong resemblance) but stouter; culmen, from frontal bone to tip, 0·58.

The whole upper surface of the bird is a rich rufescent olive brown, a *shade* browner and deeper colored than in Cetti's Warbler, and perhaps the *faintest* shade less rufescent than in *Dumeticola affinis* and *bruneipectus*. The crown and tail are rather browner; the tail obsoletely rayed darker. The inner webs of the quills

hair brown; the whole upper plumage lax, and exactly that of *Dumeticola affinis* in texture; plumage of rump and upper-tail very full, the latter reaching within 1·1 of end of tail; lower surface brownish ochraceous, a little fulvous white down the centre of the abdomen; the bases of the feathers of the throat white, showing through where these are disturbed. The sides and flanks much the same colour as the upper surface; the lower tail-coverts rather paler and faintly margined, still paler at the tips; the under surface of the tail *very* distinctly rayed, I might almost say barred, lighter and darker. Edge of the wing and wing-lining pale fulvous fawn; ear-coverts brownish rufous, many of the feathers with extremely narrow rufescent white shaft stripes.

I myself should not separate this bird generically from *Dumeticola affinis*. *Dumeticola*, of Blyth, dates from 1845, and was founded on *S. arundinacea*, Lath., and is apparently synonymous with *Calamodyta*, Mey. and Wolf., 1815. [*Schœnicola*, Bly., (*nec.* Bp., 1851) dates from 1844.]

Now, neither our present bird nor *D. affinis* are congeneric with *arundinacea*, Lath., (*nec. Lin.*, which is *strepera*, Vieill.), which, with its minute first primary, &c., is a clear *Acrocephalus*, and I think both birds must stand now as *Schœnicola*.

In size and general appearance our present bird is very like Savi's Warbler, *Pseudoluscinia luscinioides* (wrongly united, as I think, by Mr. Dresser with *Locustella*), but it is rather deeper coloured above, and *much* more ochraceous rusty below. The wing in Savi's Warbler is of course quite differently shaped, with a small almost *Acrocephaline* first primary, and the bill is longer, slenderer, less deep, straighter and less curved on the culmen.

470.—Oriolus kundoo, *Sykes*.

471.—Oriolus indicus, *Jerd.*

473.—Oriolus ceylonensis, Bp. S. F., I., 439.

Specimens of all these three species are sent, and they are said to be common, but only to ascend the hills in the cold season.

516.—Acrocephalus dumetorum, *Blyth.*

A single specimen of this species is sent, obtained at Mynall, 7th March 1877.

***695.—Ploceus manyar,** *Horsf.*

Mr. Bourdillon remarks :—

"Not a hill bird. I got these two specimens on a lake a few miles out of Trevandrum, the Vellarney lake, where there were thousands in June just beginning to weave their nests amongst the reeds which formed floating islands in the lake."

***697.—Munia malacca,** *Lin.*

Another species from the same locality as the Weaver Birds, and also breeding in June.

795.—Turtur suratensis, *Gm.*

Not uncommon.

355.—Lobivanellus indicus, *Bodd.*

856.—Lobipluvia malabarica, *Bodd.*

870.—Gallinago sthenura, *Kühl.*

Of this latter species Mr. Bourdillon remarks :—

"This specimen was obtained by Mr. Ferguson at 4,000 feet. The Pintail Snipe occurs in the cold season, at all elevations ; it is very scarce at the higher elevations, and most abundant in the rice fields in the plains. About Trevandrum they are much more abundant than *G. scolopacinus.*"

***902.—Porphyrio poliocephalus,** *Lath.*

Mr. Bourdillon says :—

"Obtained at the Vellarney lake, where they inhabit the reeds in great numbers, and though easy to shoot, are very difficult to retrieve.

In June the birds appeared to be much more scarce than when I visited the place in March ; but I heard numbers in the reeds, and I fancy they must have had nests in these.

***924.—Ardea purpurea,** *Lin.*

Abundant at the Vellarney lake, and breeding there in June.

930.—Ardeola grayi, *Sykes.*

Common everywhere.

A. O. H.

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* The species to which an asterisk is prefixed ought not perhaps, strictly speaking, to be included in the list, as they were not obtained in the Southern Hill country about Mynall, where all Mr. Bourdillon's other specimens have been obtained.

Notes on the Nidification of some Burmese Birds, II.

By Eugene W. Oates, C. E.

In a previous number of this Journal (V., p. 14), I have recorded notes on the eggs and nests of such birds as I had found nidificating in Burmah. The notes of a field naturalist accumulate so rapidly that they are liable in many cases to be overlooked after the lapse of time, or to form such an entangled mass of materials as to prevent him from ever reperusing them with satisfaction. I, therefore, hasten to abstract into a concise form such further information, concerning the breeding of birds, as is contained in my note books.

Before proceeding with the nests and eggs of those birds not before mentioned by me, I wish to add a few remarks relative to some birds, concerning which my information was meagre at the time the previous paper was written.

3.—Butastur liventer, *Tem.* (48 *ter.*)

March 31*st*, *Pegu.*—Nest with two fresh eggs in a medium-sized tree. The eggs are rather smaller than those I took before, measuring 1·73 and 1·75 by 1·45 in breadth. Color as before. (S. F., V., p. 142.)

9.—Coracias affinis, *McClell.* (124.)

I was able to record the finding of young birds only in my previous notes. This year, 1878, I have taken numerous eggs.

The eggs, four or five in number, are laid on the bare wood at the bottom of large natural hollows in decayed branches of large trees. The holes selected are generally not less than 20 feet from the ground. The shell is pure white and excessively glossy. My eggs were taken from the 26th March to the 2nd April, and were in all cases either fresh or only slightly incubated. In size they vary from 1·45 to 1·26 in length, and from 1·13 to 1·07 in breadth. The average of 12 eggs is 1·37 by 1·09. (S. F., V., p. 143.)

15.—Xantholæma hæmacephala, *Müll.* (194.)

Here again I was able to record the finding of young birds only. This year I took several clutches of eggs from the 6th March to the 5th April. (S. F., V., p. 144.)

20.—Arachnechthra flammaxillaris, *Bl.* (234 *ter.*)

This bird appears to breed twice a year, if not oftener. I had found numerous nests in July and August, but this year

I got two nests in March, one with young birds on the 16th, and one with two fresh eggs on the 17th. In my former note I carelessly omitted to give the measurements of the eggs. In length they vary from ·65 to ·57, and in breadth from ·48 to ·41; the average of ten eggs is ·6 by ·45. (S. F., V., p. 148.)

21.—Upupa longirostris, *Jerdon.* (254 *bis.*)

I succeeded in finding nests with eggs this year. One nest, found on the 10th March, contained two eggs quite fresh, and another found on the 7th April, three eggs, two of which were slightly incubated and the other addled. The nests in both instances were in natural hollows of large trees, and the eggs were placed on the bare wood. In color they are pale, spotless blue, and they measure on an average ·91 by ·67; two are quite without gloss, but three others are glossy to a very small extent. (S. F., V., p. 149.)

30.—Timalia bengalensis, *G. Aust.* (396 *bis.*)

Erroneously entered as *pileata* in my former list. This bird would appear to have two broods a year, for I procured two sittings, of three eggs each, this year in April, former nests having been found in June and July. With many eggs before me I find that the density of the markings varies considerably. The size is very constant; for the length of numerous eggs varies only from ·75 to ·72, and the breadth from ·6 to ·54. (S. F., V., p. 152.)

92.—Pelecanus philippensis, *Gm.* (1004.)

The only eggs I had of this species were some extracted from females shot in the Sittang River. Last November, however, it was my good fortune to visit a pelecanry which, for extent, is possibly not surpassed by any hitherto visited.

On the 8th November 1877, I found myself at the pretty town of Shwaygheen, the head-quarters of the district of the same name. It is situated on the left bank of the Sittang about half way between Rangoon and Tounghoo. The country to the east of the river is everywhere very hilly, and the Sittang appears to have worked itself as far to the east as it is possible for it to get, for its further progress in that direction is prevented by bold projecting hills of laterite. The country to the west is, however, very different. It consists of an immense plain of indefinite length, extending to the westward to the foot of the Pegu Hills. Certain small tracts are cultivated, but the greater part of the plain is covered with elephant grass or forest, and intersected by numerous creeks choked up with drift and running nowhere in particular.

They all, however, ultimately discharge themselves into the Sittang. Considering that these creeks drain the whole eastern half of the Pegu Hills, and have no fall to speak of after entering the plain, it is not to be wondered at that the whole area now under notice should, during four or five months, *viz.*, from July to October or November, be nothing but a most dismal swamp, inundated to the depth of ten feet in many parts. Such country is suited only for fishermen, and we accordingly find them very numerous. Indeed, the fisheries in this plain yield a very large revenue and give employment to large bodies of men. It is not, however, my intention now to describe these fisheries nor the many ingenious methods employed to catch the fish in shoals with the minimum of labour. I merely wish to give some idea of the country in which Pelicans find a suitable home.

Leaving Shwaygheen with my friend, Mr. Hough, the Deputy Commissioner, we dropped down the Sittang for about ten miles till we reached the mouth of the Hsa-zay Creek on the right bank. We proceeded up this stream till evening when we landed at a fishery to dine. We, however, found the smell so bad that we pushed out into the stream to sleep. Next morning we reached Kadat, a small village where we expected to find the Pelicans. A well-built Burmese house afforded us comfortable quarters.

The whole stream from the Sittang to Kadat runs through beautiful forest with spare undergrowth, and in many places the stream narrowed so much that we had carefully to pick a way for the boat between the trees. Immense flocks of Pelicans and Adjutants were flying in circles over our heads the whole day. Monkeys were very common, and I saw more specimens of *Polioaetus ichthyaetus* during this trip than I have during the whole of my residence in Burmah.

We arrived too late in the day to do anything, but in the afternoon, strolling out, we saw a good many Adjutants' nests, but it was not easy to climb the trees.

On the morning of the 11th I started early with several Burmans into the forest. The floods had gone down, but the ground was very muddy, and in many places, for long distances, the water came up to my knees. Every quarter of a mile there was a depression or nullah to be crossed, and I soon gave up any idea I might have had of keeping myself dry. Walking was very laborious, for though there was no undergrowth or jungle to speak of, yet the roots of trees embedded in mud and water caused me frequently to trip up.

The whole forest consisted of very large trees, but a portion, about one in twenty, was made up of wood-oil trees, gigantic

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fellows, 150 feet high and more, and with a smooth branchless trunk of 80 to 100 feet. These are the trees selected by the Pelicans.

I was out that day till 3 P.M., continually moving, and must have walked at least twenty miles in various directions, but never from first to last was I out of sight of either a Pelican's or Adjutant's nest. From what I saw, and from what the Burmans told me, I compute the breeding place of these birds to extend over an area about twelve miles long and five broad.

I shall describe the Adjutants' nests presently, but with regard to the Pelicans' I noticed that no tree contained less than three nests, and seldom more than fifteen. Some birds select the upper branches, placing their nest in a fork, but others, the majority, placed their nests on the nearly horizontal branches of the tree not far from the trunk. In all cases, the nests on one branch touch each other, and when these nests were on a horizontal branch, they looked like enormous beads.

Judging from the size of the bird I should say the nest is about two feet diameter, and when in a fork, to be about eighteen inches deep. Others on flat branches were shallower. They are composed entirely of twigs and small branches, and I could detect no lining in those nests which were thrown down to me.

The eggs are invariably three in number, and on the 11th November all I took were either fresh or only slightly incubated. The female bird sits very closely, and frequently I found that the bird would not fly off her eggs till I fired a gun. It was a most ludicrous sight to see the sitting birds stretch neck and head out of the nest to have a look at us, as often happened.

The only trees which the Burmans can climb on the spur of the moment are those which their arms can encircle. To be able to climb *any* tree it is necessary to make bamboo spikes the day before. These are driven into the trunk as the man mounts, and the operation, even for the tallest tree, does not take very long.

Notwithstanding the millions of birds which breed in this forest, a most wonderful silence prevails. The Pelican seems to be perfectly mute, and the Adjutants only bellow at intervals. The only sound which is constantly heard, and after a time even this sound passes unnoticed, is a sort of Æolian harp caused by the movement of the wings of innumerable birds high in air.

The eggs of this Pelican are pure-white at first. As incubation proceeds they change to a brown, and before hatching, become in some cases almost black. In texture, they are very

chalky, and when the outer coat of chalk is scratched or removed, the inner shell is smooth and white. The inner lining of the egg is white, and consequently the eggs of the Pelican can never be mistaken for those of either of the Adjutants, in which the lining is dark green. In shape, the eggs are rather long and narrow, equally pointed at both ends. The largest egg I have measures 3·3 in length and 2·08 in breadth, and the smallest, 2·95 by 2·05. Looking at a large number they appear more uniform in size than most eggs of large birds.

The following notes refer to those birds, the nests and eggs of which have been taken by me recently. Among them are six species, about the nidification of which I can find nothing on record :—

Syrnium seloputo, *Horsf.*
Palæornis bengalensis, *Gm.**
Ixos davisoni, *Hume.*
Sturnia nemoricola, *Jerd.*
Glareola orientalis, *Leach.*
Leptoptilos javanicus, *Horsf.*

97.—Milvus govinda, *Sykes.* (56).

There are three distinct species of Kites in Lower Pegu. *M. melanotis,* a huge bird with the basal half of the primaries white, and the general tone of the plumage bright reddish brown, is tolerably common during the cold weather in the neighbourhood of fisheries. *M. affinis,* the second species, is the most common, being found everywhere. The whole of the primaries in this bird is brown or black, with only some very insignificant white mottlings at the bases under the coverts, quite invisible when the bird is flying. Then there is the third species, the same size as *affinis,* but with the bases of the primaries conspicuously white, but much less so than in *melanotis.* This I identify with *govinda.* I am aware that Mr. Hume states (S. F., I., p. 161,) that *affinis* and *govinda* differ only in the former being of duller tints and of smaller size, leaving the reader to infer that the amount of white in both birds is equally developed on the primaries. Mr. Sharpe, however, in his diagnosis of species of this genus (Cat. 1, p. 319) points out how the two birds are to be separated, and my specimens bear out his statement. I have some young birds, however, the identification of which is difficult.

I found a nest of *govinda* on the 31st January with three eggs. (N. and E., p. 52).

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* Should stand as P. cyanocephalus, *Lin.*—Ed.

98.—Syrnium seloputo, *Horsf.* (65 *bis.*)

I have not been fortunate enough to get the eggs of this species, but I have twice found the young birds. The eggs appear to be laid on the bare wood in the fork of a large peepul tree at no great distance from the ground. A young bird, about one month old, and just able to fly, was taken on the 20th April, and another one rather younger, on the 24th March. Eggs should, therefore, be looked for at the end of February and the commencement of March.

99.—Ketupa ceylonensis, *Gm.* (72.)

Nest in a fork of a large tree ten feet from the ground. Two young birds about one month old. March, 31st (N. and E. p., 64.)

100.—Scops lettia, *Hodg.* (75.)

March 24th.—This bird selects a small hole in medium-sized trees. Two nests, each with three young birds, varying in age from a fortnight to three weeks. (N. & E., p. 67.)

101.—Dichoceros cavatus, *Shaw.* (140.)

The mode of nidification of this and other Hornbills is now so well known that, being unable to visit the forests where these birds breed in great numbers, I felt no hesitation in sending a Burman to take the eggs for me instead of going myself. He brought me four eggs and the heads of two females with the following account: He found many nests, but could induce the Karens to climb only two trees. Both were wood-oil trees. The nests in both cases were placed in a decayed hole at the spring of the first branches, in one case at about 60 feet from the ground, and in the other somewhat higher. Pieces of the materials with which the holes were closed appear to be composed of dung and earth, with which are incorporated seeds of the peepul fig and bits of leaves and sticks. The two sitting birds were captured, and the heads are easy to identify with those of females of this species, the bills of the males being different. Each nest contained two eggs, one set quite fresh, the other on the point of hatching. They measure, 2·84, 2·6, 2·4 and 2·75 in length by 1·85, 1·9, 1·8 and 1·8 in breadth, respectively. The shell is rough and without gloss. One egg is pure white, two others, one fresh and one incubated, are a uniform pale yellow, and the fourth egg is white, with numerous small yellowish dots where the outer shell is disintegrated. The eggs were taken on the 22nd March. (N. & E., p. 111.)

102.—Hydrocissa albirostris, *Shaw.* (142.)

The same man on the 20th March procured one egg of this species. The egg was hatched a few moments before it reached me. It measured 1·8 × 1·3, and was a deep reddish brown. Its natural colour was originally white I should think. On the 22nd March, my man again took a nest, killing the female and bringing me the head. The eggs were three in number, pure white and rather glossy. They were well incubated and difficult to blow. The nest was also in a wood-oil tree about 90 feet from the ground in a cavity among the lower branches. These three eggs measure 1·81, 1·76 and 1·75 by 1·35, 1·3 and 1·25, respectively. (S. F., V., p. 84.)

103.—Aceros subruficollis, *Blyth.* (146 *bis.*)

The same man on the same date, *viz.*, the 22nd March, found a nest of this species. Like the others it was placed in a wood-oil tree about 70 feet from the ground. It contained only one egg, which was nearly hatched. In color it is a dull white without any gloss, and the shell is rather rough to the touch. It measures 2·25 by 1·5. These dimensions agree well with Mr. Theobald's. (N & E., p. 115.)

104.—Palæornis bengalensis, *Gm.* (149 *bis.*)

Nest with four eggs well incubated in a hole of a tree about six feet from the ground. The hole was a foot deep, very roomy, but the entrance, which had been enlarged by the bird, was only large enough to admit its body. The eggs were laid on the bare wood. Although the sitting bird was poked at with a stick, and it took fully half an hour to enlarge the hole in order to take the eggs, yet the bird could not be induced to quit the nest, and eventually had to be dragged out. When disturbed with the stick the female made a noise like the hissing of a snake. These eggs were taken on the 22nd February.

On the 2nd March two fresh eggs were taken from another hole, and on the 16th March another nest was found also with two eggs well incubated.

The eggs are of course pure white, rather glossy when fresh, but becoming dull with incubation. The eggs measure from ·97 to ·95 in length, and from ·85 to ·8 in breadth.

105—Dicæum cruentatum, *Lin.* (236.)

I have taken many nests of this bird from the 2nd March to the 9th April. The number of eggs is either two or three, just as often one as the other. The eggs are pure-white without any gloss, and are rather pointed at one end. They vary

in size from ·58 to ·55 in length, and from ·42 to ·38 in breadth.

The nest is generally built in mango trees, but other trees, specially if the leaves are large and drooping, are also used. It is placed at all heights from the ground, from twelve feet to the summits of the highest trees. The nest is suspended from an outside twig, and is so surrounded by leaves that it is almost invisible. When once the female begins to sit, all efforts to find the nest would, I believe, be useless. It is only by watching the little birds carrying materials, which they do incessantly and with a constant twitter, that I and my shikaree have been able to secure the nests.

To say that the nest is most beautiful is only to say what is applicable to the nests of all the Honey-suckers. The nest of this little bird is simply exquisite when newly built. It measures no more than four inches in total height, and one nest I have is only 3½. It is egg-shaped, slightly pointed at the upper end, where it is attached to the branch. Its external diameter is two inches. The entrance is circular, three quarter inches diameter, and placed just midway between the top and bottom of the nest. The egg chamber is small, the walls of the nest being of considerable thickness.

The bulk of the nest is made of the finest vegetable down of dazzling whiteness resembling spun glass; and exteriorly the nest is kept firm by being bound round with fine grass, which is twisted into a rope at the lower edge of the entrance. At the back of one nest there are few patches of *excreta* of caterpillars, and in another, four dry blossoms of some shrub are stuck to the back of the nest. As a rule, however, no ornamentation is attempted. (N. and E., p. 155.)

106.—Ixos davisoni, *Hume*. (452 *quat.*)

I believe this name has priority over *annectans* of Lord Walden. A nest of this bird was found on the 1st June, and another on 6th of the same month, both containing two fresh eggs each. The females, which were shot off the nest, showed, however, no signs on dissection of being about to lay more.

The nest is a flimsy structure built of the stems of small weeds and lined with grass. A few fine black tree roots are twisted round the inside of the egg chamber. The outside and inside diameters measure four and three inches, and the depths are similarly three and one quarter. Both nests were placed low down about four feet from the ground—one in a bush and the other in a creeper.

The two pairs of eggs vary much in size. Two are ·92 and ·88 by ·60 and ·65, and the other two ·83 and ·82 by ·65 and

least one white feather on the coverts. On the other hand no bird with a black spurious first primary has ever a white feather on the wing. Even if one could be found it would not invalidate my diagnosis, for all these Mynahs are subject to albinism.

If we take newly-moulted birds of the two species, we shall find that while *malabarica* has the lower plumage almost a deep chestnut, in *nemoricola* those parts are never more than a palish ferruginous, tinged in the case of very old birds with most beautiful rose colour. These birds feed much in long grass, and the feathers below are soon worn short. Nature has, however, provided them with two moults a year, and really splendid specimens of *nemoricola* are only to be obtained about March and October.

Both these Mynahs lay in holes of trees at all heights above 20 feet. They, as a rule, select holes which are difficult of access. The eggs are laid on a small pad of grass and leaves, the nest having no defined shape. The only nest of *malabarica* that I have actually taken contained three eggs slightly incubated; this was on the 13th May. They measure ·86 × ·7, ·8 × ·7, and ·83 × ·72. Of *nemoricola* I have taken two sets of eggs, one of two eggs fresh, and one of three on the point of being hatched; the former on 12th May, the latter on 6th June. In size the two clutches vary extraordinarily. The first two eggs measure ·82 × ·62 and ·85 × ·63; the second lot measure 1·01 × ·7, 1·0 × ·7, and 1·0 × ·7.

In both species the eggs are very glossy, and the color is the same, *viz.*, an uniform dark greenish blue, of much the same tint as *Acridotheres tristis*. (N. and E., p. 433.)

111.—Glareola orientalis, *Leach.* (842.)

I have found eggs of this species from the 16th April to the 1st May, on which latter date some eggs were fresh, but others much incubated. Three appears to be the maximum number of eggs, but two only are more frequently laid. The eggs are deposited on the bare ground, burnt up sandy paddy fields being much frequented. No great number of birds breed together, nor have I ever found two nests very close to each other. The finding of eggs is consequently very laborious work. When disturbed, the sitting bird flies round one's head for a short time and then goes away. But when the young are lying hid, then the birds display great anxiety, and it is on these occasions that the bird squats on the ground with wings outspread and neck stretched out. I fancy this action is meant to counterfeit lameness, and so draw the intruder off the scent.

The young bird runs as soon as it is hatched. Its colour is a mixed pepper and salt, the black preponderating.

·61 ; the ground color of all is a pinkish white. In one pair the shell blotches of washed-out purple are spread over the whole egg, and the surface spots and dashes of carneous red are also equally spread over the whole shell. In the other pair the shell marks are grouped round the larger end to form a broad ring, and the whole egg is thickly speckled and spotted with bright reddish. The eggs are very slightly glossy.

107.—Oriolus melanocephalus, (472.)

My nests of this Oriole have been found in March, April, and May, but I have no doubt they also breed in June. No details appear necessary. (N. and E., p. 301.)

108.—Prinia hodgsoni, *Blyth.* (538.)

Nest with three fresh eggs on the 19th August; no details appear necessary except the colour of the eggs, since this bird appears to lay two kinds of eggs. My eggs are very glossy, of a light blue, speckled with minute dots of reddish brown, more thickly so at the large end than elsewhere. (N. and E., p. 342.)

109.—Sturnia malabarica, *Gm.* (688.)

110.—Sturnia nemoricola, *Jerd.* (689 *quat.*)

Both these birds are equally common throughout Lower Pegu. Mr. Hume (S. F., IV., p. 333) wishes to unite the two. The two birds, however, although they associate in the same flock and have a general superficial resemblance to each other, are quite distinct. Apart from the fact that *nemoricola* has the winglet and primary coverts always with some white on them varying in extent with age, and *malabarica* never has a single white feather on those parts, there is another constant and never-failing* point of difference between them, and this lies in the colour of the spurious first primary. In *nemoricola* it is always white; in *malabarica* it is always black. I have a very large series of both birds, and this distinction always serves to separate with precision those birds which are white, or have some portion of white on the winglet and primary coverts, and on the other hand those birds which have no white on those parts. As to the amount of white in *nemoricola* I am convinced it is only a matter of age. But no bird, however young, with a white spurious first primary, is without at

* This distinction does out hold good; we have several unmistakeable *nemoricola*, white on wing, pale under surface, with this spurious primary black. I have fully discussed the question of these races, S. F., VI., 390, which, though printed nine months ago, had not been issued when Mr. Oates wrote.—A. O. H.

The eggs are undistinguishable in everything but size from those of the Burmese Lapwing. They are quite different from those of *G. lactea*. The ground color is buff or stone color, and the whole shell is thickly blotched with blackish brown, and underlying smears of paler brown sunk into the shell. Other eggs are so thickly blotched as to appear black when viewed at a short distance off. They are without gloss and Plover-like; one end of the egg is much pointed.* In size they vary from 1·25 to 1·12 in length, and from ·96 to ·9 in breadth, but the average of a considerable series is 1·18 by ·93. (N. and E., p. 568.)

112.—Esacus recurvirostris, *Cuv.* (858.)

Nest on May 1st with two fresh eggs in fallow land. No details appear to be necessary. (N. and E., p. 579.)

113.—Leptoptilos giganteus, *Forst.* (915.)

Along with the Pelicans, breeding in the same trees, were innumerable Adjutants. One can hardly realize the number of these birds that visit Pegu in October, unless, as I have, he has seen the vast armies which settle on the plains on their first arrival. I have stood on a bund where I could see about two miles round me, and the whole area was literally covered with them. Some fifty birds stand huddled together; then there is a bare space of about 100 feet, and then another group of birds. Their numbers are incredible. They all arrive suddenly in the Pegu plain on the same day, and after resting for about two days, they betake themselves to the forest where I had the pleasure of visiting them. Certainly almost all the Indian Adjutants must come to Pegu to breed.

On the same day we took the Pelican's eggs, we also paid attention to the Adjutants, but whereas in the case of the Pelicans by climbing one tree you procure almost as many eggs as you care to have; with the Adjutants it is different. Frequently there is only a solitary nest in a tree, rarely two or three, and in this case the tree selected is a stupendous one, with immense branches reaching 50 feet from the trunk and mostly horizontal. These nests are not to be got at even by

* This is especially noteworthy as showing that, in its eggs, this species diverges widely, not only from *G. lactea*, but from its extremely closely allied congener, *Glareola pratincola*, Lin. The eggs of the former fully described, N. and E., 568, are not in the least Plover-like but rather Tern-like, and of the latter Mr. Hewitson says of the egg: "In shape and colour they bear a much closer resemblance to the eggs of the Black Tern, than to those of any other British bird; they are not at all like the pointed eggs of the true Waders." By which he here means to refer to the Plovers, Godwits, Snipes, &c.—A. O. H.

Karens. Fortunately the nests are so frequent that there is no difficulty, in the course of a morning, in finding accessible ones in plenty.

November 11th was a trifle too early. Many nests were still being built; others had no eggs in them, and only a few had the full complement of three eggs.

The nest is made entirely of coarse sticks, and it is of such a size that the sitting bird cannot be seen from below, except when she stretches her head out. It is wedged into a fork as near the exterior of the tree as possible whether at the top or side.

The eggs, three in number, are originally pure white and tolerably, in some specimens very, smooth to the touch. As incubation proceeds the shell gets much stained and becomes a dark earth brown. The interior lining is very dark green. They are very regular ovals, much the same shape at both ends. Size from 3·1 to 2·82 by 2·25 to 2·08.

These Adjutants utter only one sound, and it resembles the lowing of a cow when separated from her calf. It was the only sound heard in these gloomy forests. (N. & E., p. 605.)

114.—Leptoptilos javanicus, *Horsf.* (916).

While taking some nests of *L. giganteus*, I sent some of the party to look for accessible trees. They misunderstood me, and finding a tree which could be climbed, a man ascended and took two eggs, which he brought me as the eggs of the Hair-crested Adjutant. I failed to see any of these birds myself, but they are common enough in the same forest, for subsequently I procured young birds which I am now rearing. I see no reason to doubt the authenticity of the eggs. I was in the forest only one morning, and might easily have failed to notice this species. In fact the Burmans told me it was too early for them, as they breed later than the Pouched Adjutant.

The two eggs measure 3·16 and 2·98 by 2·25 and 2·2, respectively. These dimensions are rather larger than the largest egg of *giganteus* I procured. In color they are precisely the same. This year I hope to get more reliable specimens.

115.—Xenorhynchus asiaticus, *Lath.* (917).

The breeding of this bird is well known. In the Pegu plains they select an isolated tree and make a large nest near the summit. On the 1st December I took two eggs, and on the 6th January a clutch of four. Young birds reared from the nest are now (June) moulting into the adult plumage. (N. & E., p. 607.)

116.—Ardetta sinensis, *Gm.* (934).

Common as this bird is, its nest is one of the most difficult to find, and when found, to secure. It selects the matted leaves of immense reeds, and places its nests on the summit where wind and rain have entangled the leaves and worked them into a platform. The nest itself is a mere pad of dry grass and leaves.

I have only taken one nest, which contained four eggs. They are without gloss and a pale green color. They measure 1·26, 1·31, 1·3, and 1·28 by ·95, ·95, ·97 and ·93, respectively. They were found on the 20th August and were fresh. (N. & E., p. 623.)

117.—Nettapus coromandelianus, *Gm.* (951.)

Nest with ten eggs on the 15th September in the hole of a mango tree about 30 feet from the ground. (N. & E., p. 638.)

The Birds of a Drought.

THE general geographical range of any species may be assumed to have been defined, either by physical barriers, past or present, which were impassable to it, such as lofty chains of mountains, seas, &c., or by the pressure of conditions unfavourable to its existence, configural, climatic, nutritive or competitive.

Under configural conditions, I include all local terrestrial features. Station implies a combination of such features favourable to the existence of the particular species in question, and an absence of such features is a potential factor in the limitation of range.

Geographical *range* and *station* are often sharply contrasted; *range* is used as expressing the entire area on the world's surface (as determined by a multiplicity of causes) over which the species is spread with more or less continuity; *station* is used to signify the particular local areas (determined by terrestrial features only) which the species affects.

Thus of the Osprey, the *range* would be defined as "the whole of the Old and New Worlds except part of South America," the *station* as "the banks and coasts of more or less considerable aggregations of water, running or standing, fresh or salt, and their immediate neighbourhoods."

All local terrestrial features, not comprehensible in the expression "its *station*," are *primâ facie* "configural" conditions unfavourable to the existence of the particular species.

Climatic conditions (temperature, rainfall and the like) nutritive conditions, (nature and extent of food supplies, and degrees of facility with which they can be obtained), these latter very often mainly dependent on the former, and competitive conditions (in which I include the absence or presence, not only of races consuming the same food, but also those actively hostile), all combine with configural conditions to determine range.

These different classes of conditions operate with very varying degrees of potentiality where different classes of animated life are concerned; and even in the same class, in the case of different families, and at times even genera.

In tropical and sub-tropical climates, probably no one factor exercises so powerful an influence over the distribution of land birds (as opposed to shore and water birds) as the rainfall. Our rainfall charts have not yet been worked out in sufficient detail to enable me to present the matter in a complete shape, but we have enough data to show to what a remarkable extent the average annual rainfall influences the distribution of a vast number of species.

You find a species plentiful in a certain region, of which the average annual rainfall is, say 100 inches and over; leaving this region the species is perhaps absolutely wanting for a thousand miles, and then you re-enter an iso-ombral* tract and straightway your species re-appears.

Hitherto, while tracts have been classed according to average temperature and half a dozen other averages, very little, if any, attempt has been made, in this country, to class them according to average rainfall, and yet in tropical and sub-tropical regions, at any rate throughout this vast empire, nothing so distinctly governs distribution.

It is customary to talk of the Malayan *facies*, of the Fauna of the Malabar Coast, the Assamboo Hills and part of Ceylon; what is this but that in these localities you recover the heavy rainfall of the Malay Peninsular? How the same species or representative forms found their way to these distant localities is another question, but their survival in each is due primarily to the extent of the rainfall.

What gives such a plains of India *facies* to the dry upper portions of Pegu, but the light average rainfall? What allows the Indo-Malayan species to run up westward along the feet of the Himalayas, at any rate as far as the Ganges, but the heavy rainfall?

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* ὀμβρος = rain.

Map the whole country out carefully into iso-ombric zones and patches, and of a vast number of tropical and sub-tropical species, you can at once map out the exact distribution.

No doubt there are some species, to whom wide variations in rainfall seem to signify nothing, others that an almost total absence of rainfall fails to banish, and it is a matter of much interest to determine which these species and genera are.

During the last cold season I remained for nearly a month at Jodhpoor; and as this place, besides having normally a rainfall of only about 6 inches, had, during the previous 15 months, had *no* rain at all, only two or three times little attempts at showers insufficient even to lay the dust, it occurred to me that an exact record of the birds actually then present, between January 15th and February 15th, in this rainless and waterless entourage might be both interesting and useful.

Accordingly I collected most carefully. Not only was I out each morning at daylight, searching vigorously for birds for some three hours, but I had out two natives, well trained to the work, shooting all day. I doubt very much if a single species then present within a radius of from eight to ten miles from the town escaped us.

The tract worked was a nearly level semi-desert sandy plain, dotted about at rare intervals, with tiny patches of cultivation, and here and there studded with low hills of bare rock (on one of which Jodhpoor stands) from one to three hundred feet in height. The rest of the plain is more or less thinly covered with stunted or dwarf thorny scrub, interspersed with bare sand, or congeries of wind-waved blown-sand hillocks. In tiny valleys of the rocky hills, a few small artificial tanks still held water, but not a drop of this was to be found elsewhere, and a large proportion of the wells were dry.

If ever there was an unpromising field for an ornithologist it was here; and yet not only were a good many species to be found, but two or three of these, species of some interest.

I will now subjoin a list of the species obtained, with such few remarks as these seem to call for.

2.—Otogyps calvus. 5.—Pseudogyps bengalensis. 6.—Neophron ginginianus. 11.—Falco jugger, *rare*. 16.—Falco chiquera. 17.—Cerchneis tinnunecula, *rare*. 29.—Aquila vindhiana. 45—Buteo ferox, *rather scarce*. 56.—Milvus govinda. 72.—Ketupa ceylonensis, *only one single specimen seen and shot*. 76.—Athene brama. 82.—Hirundo rustica. 90.—Ptyonoprogne concolor, *rare*. 117.—Merops viridis, *scarce*. 129.—Halcyon smyrnensis, *very rare; only seen at the little tanks above referred to*. 148.—Palæornis

torquatus. 160.—Picus mahrattensis. 234.—Arachnechthra asiatica, *short billed and green, closely approaching the brevirostris form.* 254—Upupa epops. 256.—Lanius lahtora. 277—Pericrocotus erythropygius. 278.—Buchanga atra. 292—Leucocerca aureola, *rare.* 436.—Malacocercus malcolmi, *very common.* 438.—Chatorhea caudata, *do., fairly typical and not approaching* huttoni. 459—Otocompsa leucotis. 462.—Molpastes hæmorrhous. 480.—Thamnobia cambaiensis, *fairly typical.* 481.—Pratincola caprata, *very common.*

485 *bis.*—Pratincola macrorhyncha, *Stol.*

J. A. S. B., XLI., 238, 1872, juv.—S. F., IV, 40, *n.* Descr. —S. F., V., 132, 241, 244.

P. rubetraoides, *Jam. Jerd.* B. of In., App., 872, 1864, *sine descr.*

(*Dresser*, B. of Eur., Pt. XXIV., 1873, *sine descr.*)

Hume, S. F., V., 240, 1877, Descr. *adult.*

P. rubetra? *Hume*, Ibis, 1869, 355; 1871, 28.

P. jamesoni, *Hume*, S. F., V., 239, 1877.

Distribution.—Punjab, (*Goorgaon, Umballa, Sirsa, Hansi, Shahpoor*, and probably all western districts); Rajpootana, (*Jodhpoor, Bickanir, Jeysalmir*); Northern Guzerat, Cutch, Sindh (*Thurr* and *Pakhur* districts, and probably elsewhere.)

This species was extremely abundant in the thin, stunted scrub jungle, that here and there studs the sandy, semi-desert, waterless tracts which occur all round Jodhpoor. I procured a large series, and I satisfied myself beyond a possibility of doubt that Stoliczka's and Jameson's birds pertain to the same species.

It seems highly improbable, and I state the fact with diffidence, but according to my sexing (and I sexed 33 birds), the adult males and females are alike, and constitute *rubetraoides*, while the birds of the year are *macrorhyncha.* All my birds were killed at the end of January and during the first week in February, when the weather was singularly cold, and the generative organs were entirely undeveloped, and in most specimens traceable with great difficulty, and I may be in error. But in my large series I have just as many males as females in both forms, and the close similarity of both sexes was what I had years previously ascertained, to the best of my belief, in the case of the adults (*rubetraoides*) in the Punjab, so that for the present I think we must accept the conclusion that the young of both sexes are alike, and are the birds Stoliczka named *macrorhyncha*, while the adults equally (*at any rate in the cold season*) are alike, and represent *rubetraoides.*

I have pointed out (S. F., V., 239,) how this species differs from the European *rubetra*, and I have very fully described the adults, (S. F., V., 140). I may add the following dimensions recorded in the flesh of five (as they proved on dissection) females, two in the *rubetraoides* and three in the *macrorhyncha* plumage:—

	Date.	Length.	Expanse.	Tail.	Wing.	Tarsus.	B. fr. gape.
♀, rubetraoides plu. ...	27-1	5·85	9·4	2·0	3·05	0·9	0·71
♀, Do. do. ...	27-1	5·87	9·4	2·05	2·96	0·97	0·66
♀, macrorhyncha, plu...	25-1	5·85	9·1	2·1	2·9	1·05	0·76
♀, Do. do. ...	27-1	5·73	9·0	2·1	3·0	1·0	4·68
♀, Do. do. ...	27-1	5·9	9·1	2·0	2·9	0·98	0·66

Bills black to brownish black; legs, feet and claws black.

I said (V., 241) that I had no idea what the breeding plumage might be like, and that the birds must breed in Central Asia. I may now mention that two or three of both my males and females have the lower parts of the lores, cheeks, ear-coverts and entire sides of the throat (leaving only a narrow pure white stripe down the centre of the throat) black, the feathers only a little tipped with pale sandy, which doubtless in the breeding season entirely disappears; also that the lesser and median and the secondary greater wing-coverts and the winglet have become nearly black, only very narrowly edged with sandy buff, which colour also seems in the course of disappearing.

Also I may say that I am now by no means sure from further enquiries that this *is* a migratory species. One would naturally suppose it to be so, but natives (who are, however, not to be relied on in regard to any small birds) assured me that they breed in Jodhpoor during the scanty rainy season (only about 4 to 6 inches rainfall) that they have there.

The young are fully described, S. F., 40 *n*, and I have already (V., 241) clearly pointed out the differences between these and what I now believe to be the adults.

I say, now believe, because I must go by my own specimens, but I may mention that a year ago my friend Mr. Blanford told me that he believed *macrorhyncha* was only the female of *rubetraoides*, and *primâ facie* looking to the differences that exist in the two sexes of other species, this would be most probable.

In habits this species does not differ from *P. indica*. I found it always perched on some exposed spray, at or near the top of some stunted, thorny bush. I found nothing but insects recognizable in the stomachs of those I examined, though in several there was nearly digested matter that might have been the pulp of seeds. I never heard it sing or attempt to sing, but it has a little sharp chip chip note, which I now and then caught.

488.—Saxicola opistholeuca.

489.—Saxicola picata. Not one single specimen of what Blanford and Dresser call *morio*, and what I believe to be a different form, the old adult, of this species. The case is clear, the old birds were not to be caught with chaff; Jodhpoor this year was much too dry and husky for them, though in other years, when such a drought does not prevail, they are not uncommon here.

491.—Saxicola isabellina.

491 *bis*,—Saxicola chrysopygia, *De Fil.?*

S. kingi, *Hume*. Ibis, 1871, 29.—S. F., I., 187.

DESCR.

I have already fully described this species, *loc. cit.*

I very much doubt the correctness of Messrs. Blanford's and Dresser's identification of my bird with De Filippi's.

The latter preserved no specimens, (or these have been lost), and we have only his description to go by, and the fact that *kingi* has been procured in Beloochistan and in Persia, but *not* as yet in the locality (not since explored), "the highest and most stony parts of the Hills that encircle Demavend," whence De Filippi obtained his *chrysopygia*, is certainly not conclusive as to the identity of the two species.

The following is De Filippi's original description (Arch. Zool. Genov. II., 381, 1863).

DROMOLÆA CHRYSOPYGIA, *De Fil.*

"*Capite, collo, dorso supremo cinereo plumbeis; dorso infimo fuscescente; uropygis tectricibusque caudæ (elongatis) albescenti flavidis, sensim in rubiginoso vertentibus; collo infimo, pectoreque supremo cinerascentibus; cæterum infra sordide alba; crisso lævissime rubiginoso tincto, remigibus fusco-cinereis, secundariis extus rubiginoso marginatis; rectricibus fulvo-rubiginosis, versus apicem nigris, limbo extremo denus rubiginoso.*

"Il nero sub fondo rossa della coda è esteso per la terza parte delle timoniere laterali, ma nelle due mediane per la meta."

Now to my idea the very first sentence is fatal to the identification. I have a *large* series, and in not one is there a trace of leaden ashy on the upper surface, which is a pale earthy brown; then the rump and upper tail-coverts cannot possibly be designated "whitish yellow *gently* inclining to ruddy" as they are invariably a bright rufous fawn. Nor are the quills brownish ashy, but deep hair brown, nor are the secondaries ever margined with rufous, nor are the proportions of the black and red of the tail as stated by De Filippi; only about ¼ of the lateral

tail feathers *at most* (in some less) and more than one-half of the median ones, being black in *kingi*.

Of course *chrysopygia* is some bird of this type, but in the absence of any types, the description agrees so ill with *kingi* that I see no fair grounds whatsoever for the identification, and, were the species not my own, should reject De Filippi's name unhesitatingly.

492.—Saxicola deserti.

494.—Cercomela fusca. 497.—Ruticilla rufiventris, *rare*. 550.—Burnesia gracilis. 551.—Franklinia buchanani; *both these last very common*. 581.—Sylvia jerdoni, *rare*.

582.—Sylvia affinis. This was excessively common, as was also the very small form that I designated (S. F., I., 198.)

583 *ter*.—Sylvia minula.

At the time I conferred this name I was disposed to consider it a mere race, but this year, observing it closely, I noticed that its habits were those of *S. nana* rather than of *S. affinis*; that it kept much to the ground, running in and out of the roots of the bushes, like a small sand rat, just as *nana* does. Indeed I was continually shooting it for *nana*, whereas I never shot a single *affinis* by *mistake*.

Further, close inspection has led me to suspect that it may perhaps be a good species, and in this view Mr. Brooks, who is well known, has paid special attention to this group, and to whom I sent several specimens entirely concurs. He says *in epist*:—

"Your Little White Throat is neither *affinis* nor *garrula*, but a really good species. Its wing is rounder than either, 2=7 or 7/8, against 2=5 and 2=6. It is much smaller too, and almost as brown on the back as *delicatula* (*nana*)."

In another letter:

"The Little White Throat is a very good thing, *no race*, but a clearly distinct species. Little bill, pale sandy color, much smaller size and much rounder wing, are differences sufficient to separate any birds of this group."

To this I must add difference of habits, in which it coincides with *nana* and not with *affinis*, and a difference in distribution, it being, I believe, entirely confined to the desert country—Sindh, Bhawulpur, and Western Rajpootana.

But it is not to be disputed that great practical difficulties exist in separating in the cabinet, specimens of the different races or species of White Throats that occur in India. When a really large series, such as our Museum contains, is got together and carefully compared, one generally comes to the conclusion that it is impossible to separate these races. This was the

conclusion I came to S. F., I., 198, where I fully characterized the three races. Yet formerly in the field, and again this year observing them alive and free, I was fully impressed with their distinctness. Now again reviewing only specimens, I find many of my old difficulties arise.

So far as one can see, the birds do not associate; their habits are recognizably distinct; typical specimens of each are equally recognizably distinct, but when one overhauls a hundred or so, a certain number, small it is true, but still an appreciable proportion of the whole, appear, which, in one way or another, connect together, so far as color, size, and proportions of the primaries go, the three supposed species.

Mr. Brooks remarks on *Sylvia affinis* and *curruca* (S. F., II., 332; III., 272), and Captain Butler's (S. F., III., 487) will be remembered and referred to.

Mr. Dresser's article on *S. curruca*, Birds of Europe, Pts. 47 and 48, March 1876, p. 4, should also be consulted.

Mr. Brooks pointed out, *loc. cit. sup.*, that our Indian White Throats differed from the European *Sylvia curruca* in the shape of the wing. The 2nd primary being in the European bird equal to the 5th or 4/5th or 4th, whereas in the Indian bird the 2nd primary is never longer than the 6th. Now I consider that this point, first noticed by Mr. Brooks, is a good and constant point of difference. I have nine English specimens of *S. curruca* before me; in seven of these the 2nd equals the 5th, in one it is intermediate between the 4th and 5th, and in one it is intermediate between the 5th and 6th, but nearer the 5th.

I have also before me one hundred and sixteen perfect winged (I omit those that are imperfect) Indian White Throats, and in not one single specimen is the 2nd primary longer than the 6th.

I think it is, therefore, allowable on the strength of this apparently perfectly constant difference in the wing formula to assume that the European and Indian White Throats are distinct.

Reverting now to my original remarks on this group (S. F., I., 197,) I still find, as I then did, that there are three recognizable races in India, but whereas I called the 2nd or intermediate sized race, *curruca*. Mr. Brooks has shown by an examination of the type that this is really Blyth's *affinis*, and the third and largest race remains as yet without any distinctive appellation.

Now these three races are as follows:—

First.—A very large species with the wings in the males running to 2·8, with scarcely, comparatively speaking, any brown upon the back; everywhere a leaden-greyer bird than either of the other two.

This is clearly a rare bird. I have only five specimens, as follow :—

Jhansie,	*male*;	wing 2·8;	2nd primary nearly equals	8th.
Deesa,	*male*;	wing 2·78;	2nd " " "	7th.
Ahmednuggur,	*male*;	wing 2·79;	2nd primary intermediate between	6th & 7th.
Bhawulpur,	*female*;	wing 2·7;	2nd " " "	6th & 7th.
Ramoo Cashmeer,	*male*;	wing 2·8;	2nd " " "	6th & 7th.

I think that any one studying a large series carefully would have no difficulty and feel no hesitation in picking out the birds belonging to this race, in which, although there is no constancy in the wing formula, the large size and difference in color very readily distinguishes it.

With only a few specimens before me I should not have felt any such certainty, but with 116 good specimens, all carefully measured and examined, I do feel that the bird must be accepted, at any rate, as a clearly recognizable race. The difference is greater than in the case of many *Phylloscopi* admitted as distinct species. Those who do not admit *races* may call this bird *Sylvia althæa*.

Second.—We have the ordinary Indian race which, during the cold season, is spread over the entire empire, and which a comparison of the types proves to be *S. affinis*, Blyth.

In this species the back is much more decidedly brown than in the preceding species; it is also smaller, and while it has a decidedly larger and stouter bill than the English *curruca*, it has at the same time a decidedly smaller one than *althæa*.

In this species the wings, as a rule, vary from 2·45 to 2·65; out of ninety-three specimens only three have the wings smaller than 2·45, and only two have them larger than 2·65.

The wing formula is not absolutely constant; of the ninety-three, sixty-two have the 2nd primary equal to the 6th, twenty-five have it intermediate between the 6th and 7th, five have it equal to the 7th, and one has it intermediate between the 7th and 8th. It may be useful here to give a list of all these specimens, showing the localities where they were procured, the sex, where this has been noted, and the length of the wing :—

2nd primary equals 6th (62 specimens.)

Etawah ...	... *Male*	2·5	Mogulserai	... *Male*	2·56
Sambhur ...	... *Female*	2 5	Jodhpur ...	... "	2·6
Etawah ...	... ?	2·6	Delhi ...	... "	2·45
Etawah ...	... *Male*	2 5	Cawnpur ...	... ?	2·53
Cawnpur ...	... ?	2·49	Ajmeer ...	... *Male*	2 53
Oodeypur ...	... *Female*	2·55	Soojut ...	... "	2·49
Delhi ...	... "	2·58	Lahore ...	... ?	2·46
Allahabad	... *Male*	2·6	Kussowli ...	... *Male*	2 52
Beaur ...	... "	2·7	Lahore ...	... "	2·55
Umballa ...	... "	2·65	Lahore ...	... ?	2 61

Dinapur ...	...	*Female*	2·55	Dinapur ...	...	?	2·55
Dinapur ...	...	„	2·45	Dinapur ...	...	*Male*	2·6
Dinapur ...	...	?	2·6	Dinapur ...	...	*Female*	2·6
Ahrowra ...	...	?	2·6	Dinapur ...	...	„	2·6
Etawah ...	...	?	2·5	Deesa ...	...	„	2·66
Mogulserai	...	*Male*	2·65	Rooree ...	...	?	2·5
Sukkur ...	...	*Female*	2·6	Buxar ...	...	*Female*	2·45
Aboo ...	...	?	2·56	Dinapur ...	...	„	2·6
Sambhur ...	...	*Female*	2·45	Mithencote	...	„	2·6
Bhawulpur	...	?	2·71	Saugor ...	...	?	2·5
Ramoo, Cashmeer	...	*Male*	2·68	Saugor ...	...	*Male*	2·5
Dinapur ...	...	*Female*	2·48	Etawah ...	...	?	2·46
Dinapur ...	...	*Male*	2·55	Etawah ...	...	*Female*	2·45
Jhansie ...	...	?	2·52	Dinapur ...	...	„	2·5
Mithencote	...	*Female*	2·51	Jhansie ...	...	*Male*	2·5
Erinpoora	...	*Male*	2·65	Buxar ...	...	*Female*	2·51
Bhawulpur	...	*Female*	2·55	Jhansie ...	...	?	2·4
Sambhur ...	...	*Male*	2·65	Nal, Khelat	...	?	2·62
Mooltan ...	...	„	2·61	Nal, Khelat	...	?	2·48
Dinapur ...	...	„	2·6	Jhansie ...	...	*Female*	2·49
Dinapur ...	...	*Female*	2·53	Dinapur ...	...	*Male*	2·56

2nd primary intermediate between 6th and 7th (25 *specimens.*)

Dinapur ...	...	*Male*	2·55	Etawah ...	...	*Female*	2·46
Sambhur ...	...	*Female*	2·6	Jodhpur ...	...	„	2·42
Dinapur ...	...	*Male*	2·49	Jodhpur ...	...	?	2·63
Delhi ...	...	*Female*	2·6	Etawah ...	...	*Male*	2·5
Etawah ...	...	„	2·5	Allahabad ...	...	?	2·63
Dinapur ...	...	„	2·51	Umballa ...	...	*Female*	2·55
Sambhur ...	...	„	2·45	Ahrowra ...	...	?	2·5
Umballa ...	...	*Male*	2·6	Ahrowra ...	...	*Female*	2·5
Mogulserai	...	„	2·55	Allahabad	...	*Male*	2·5
Delhi ...	...	„	2·45	Dinapur ...	...	*Female*	2·36
Umballa ...	...	*Female*	2·6	Ahrowra ...	...	„	2·59
Mogulserai	...	*Male*	2·59	Jodhpur ...	...	*Male*	2·5
Delhi ...	...	*Female*	2·6				

2nd primary equals 7th (5 *specimens.*)

Rasmalan, Mekran Coast		?	2·55	Ajmeer ...	...	?	2·52
Nagpur ...	...	?	2·55	Coimbatore	...	?	2·6
Dinapur ...	...	*Male*	2·51				

2nd primary intermediate between 7th and 8th (1 *specimen.*)

Jodhpur, *Male*, 2·55.

As regards this species I have to notice that there is a marked variation in the color of the lores and ear-coverts. In some specimens these are barely darker than the nape; in others they are almost black. This difference is not apparently due to either sex or season, as I have specimens of both sexes with the dark lores and ear-coverts, and also with the pale ones, killed in October, November, December, January, February, March, and April; it is either an individual peculiarity, or it may be dependant on the age of the bird.

Third.—We have the small desert race which I designated *minula*, with a pale blue grey crown, and with the whole

mantle a pale sandy brown, much paler than in *affinis*, almost the same as in *nana*.

In this species only two out of seventeen specimens have the wings over 2·45. The majority run under 2·4. Of seventeen specimens, thirteen have the wings 2=7; three have the 2nd intermediate between 7th and 8th; one has the 2=8.

This species is, I find on careful re-examination of my whole collection, confined entirely to the extreme western portions of the Continent. I said formerly (S. F., I., 198) that I had a specimen from Jhansie, but on re-examining it I find that it was not correctly assigned to this race. I give below a list of my specimens similar to that already given for those of *affinis*:—

2nd primary equals 7th (13 *specimens.*)

Jodhpur ...	...	?	2·4	Chenab and Ravee Junct.	*Female*	2·36
Jodhpur ...	...	?	2·35	Bhawulpur ...	„	2·46
Mooltan ...	...	*Male*	2·35	Chenab and Ravee Junct.	*Male*	2·33
Jacobabad	...	?	2·44	Bhawulpur ...	?	2·39
Jacobabad	...	*Female*	2·35	Bhawulpur ...	?	2·39
Sukkur ...	...	„	2·3	Ravee and Chenab Junct.	*Male*	2·4
Mithencote	...	„	2·35			

2nd primary intermediate between 7th and 8th (3 *specimens.*)

Jodhpur ...	...	*Male*	2·43	Jodhpur ...	...	*Male*	2·53
Jodhpur ...	...	*Female*	2·31				

2nd primary equals 8th (1 *specimen.*)

Ferozpur, *Male*, 2·5.

Although there will, doubtless, be some few exceptions, the following rough diagnosis will suffice to enable observers to separate the great majority of the specimens they may meet with:—

S. ALTHÆA.	S. AFFINIS.	S. MINULA.
Upper surface darkish grey; slightly tinged with brown on the back.	Crown brownish grey, mantle earth brown.	Crown pale bluish grey; mantle pale sandy brown.
Wing, 2·7 to 2·8.	Wing, 2·45 to 2·65.	Wing, 2·3 to 2·45.
2nd primary=6-7, 7, 7-8.	2nd Primary=6, 6-7.	2nd Primary=7, 7-8.

Individual specimens will undoubtedly occur, which will not in *every* respect fall within the lines of this diagnosis; and it is this which has made me doubt whether these three forms should be considered races or species; but the very great majority of the specimens can be at once diagnosed as above, and in all I think two out of the three points will be found to hold good.

I have endeavoured now to lay the matter fully before my readers; it is right, and indeed necessary, that they should understand and recognize the existence of these three forms, but

whether they shall accept them as mere races of one species, or as three distinct species, is a matter for each one to decide for himself. That they are all three invariably distinguishable from *curruca*, of Europe, by the proportions of the primaries I hold to be pretty well established.

583 *bis.*—Sylvia nana; extremely abundant in the low scrub. 591.—Motacilla dukhunensis. 602.—Anthus campestris.

657.—Corvus laurencei, *Hume.*

This Raven swarms about Jodhpoor. Our camp was a large one, perhaps containing 1,000 souls, and in amongst the tents, from dawn till dark, familiar and fearless as sparrows, were at all times from 50 to 100 of these ravens, stalking about singly and croaking vigorously to each other.

It may be my ignorance, but I cannot help considering this Raven distinct from *corax* of Europe, of which I kept two as a boy, and with which I have been very familiar.

In the first place, the note is decidedly different, less hoarse, less deep, less unmusical.

In the second place, the colour of the sheen is different, and there is a purplish tinge on the throat and upper breast hackles in fine specimens, of which I find no trace in skins of *corax*.

In the third place, the bird is only about half the bulk, it seems to me, and very differently shaped.

The very largest male that I have ever met with measured only 24·75 inches long; old males average 24·0; females, 23·0. The heaviest bird out of some fifty that I have weighed at different times only weighed 2lbs. 5oz.; 2lbs. to 2lbs. 2oz. is the weight for fine males; 1·12oz. to 1·14oz. for females.

Then the wings are excessively long for the size of the bird, and vary from 16·3 in the smallest female measured (but only good adults were measured) to 17·4 in the largest male.

The wings in the fresh bird reach, as a rule, when closed, *quite* to the end of the tail; in no case have I found them fall more than 0·5 short of this.

The tail is very much rounded, the outer tail feathers are always 2 and occasionally fully 2·5 inches shorter than the central ones.

I have unfortunately no sufficient series of European specimens to compare, but I shot and preserved a dozen of *this* supposed species at Jodhpoor, which I shall send home for comparison there.

Our bird I may note is a permanent resident in the N. W. Punjaub, &c., and breeds there freely. (See Nest and Eggs, Rough Draft, 408.)

It has been suggested that my bird might be *umbrinus*, but considering that the adult has no brown about it, (of course the

young have the wings and tail brown) and looking to the dimensions of the wing above given (that of *umbrinus* varies from 14·2 to 15·7), I think it needless to discuss this hypothesis, the more so that I have one specimen of the true *umbrinus* from Jacobabad, Sindh, (in regard to which *vide infra*, my notes to Mr. Murray's paper) which is as different from the present species as any Crow can be.

662.—Corvus splendens, *rare*. 684.—Acridotheres tristis. 706.—Passer domesticus. 716 *bis*.—Emberiza striolata, *on the flanks of the rocky hills only*.

732 *bis*.—Bucanetes githagineus, *Licht*.

Jodhpoor is the most eastern locality from which this species has as yet been obtained. Westwards of this it occurs in Jesulmir, as well as in Sindh. At Jodhpoor it was very rare, and I only saw and shot a single male, and though my men hunted hard, being very indignant at my getting a species that they did *not* get, they never succeeded in securing one.

760 *bis*.—Pyrrhulauda melanauchen, *Cab*.

Mus. Hein, I., 124, 1851.—*Finsch*, Tr. Z. S., VII., 275, pl. XXV., 1869—*Hartl. and Finsch*, Vög. Ost. Afr. 469, 1870.—*Blanf.* Ibis, 1873, 223.

crucigera, *Rüpp.* Syst. Uebers., 79, No. 313, 1845, (*in p.*) nec *Tem.*

nigriceps, *Heugl.* Fawn. Röth. Meer. No. 185, 1861, nec *Gould*.

affinis, *Blyth*, Ibis, 1867, 185. *Hume*, S. F., I., 212, 1873.

I formerly, *loc. cit. supra*, indicated the more conspicuous differences between this species and the common Indian *P. grisea*, Scop., but I had not at that time seen the female of the present species, nor was I aware of the extent to which the plumage of apparently adult males differs.

The following are dimensions recorded in the flesh of several specimens, males and females :—

Sex.	Length.	Expanse.	Tail.	Wing.	Tarsus.	Bill from gape.	Culmen.
♂	5·61	10·1	2·2	3·2	0·6	0·5	0·55
♂	5·6	10·0	2·2	3·17	0·7	0·47	0·56
♂	5·4	9·85	2·0	3·14	0·7	0·43	0·53
♂	5·5	10·5	2·2	3·3	0·65	0·47	0·52
♂	5·55	10·3	2·3	3·3	0·68	0·47	0·5
♀	5·4	10·0	2·0	3·11	0·69	0·48	0·52
♀	5·3	9·6	2·1	3·02	0·7	0·49	0·52
♀	5·23	9·7	2·0	3·03	0·63	0·45	0·51
♀	5·55	10·1	2·1	3·2	0·7	0·5	0·5

The irides were brown; the bill varied from pale whitey brown, bluish on lower mandible, to pearly white with a bluish

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tinge; the legs and feet were pale whitey brown, pale hoary fleshy, or pale brownish fleshy.

The male has a broad frontal band, cheeks, ear-coverts and a band from these round the base of the occiput, and a large patch on either side of the breast, white, in the case of the two latter often tinged brownish.

The base of the lower mandible, chin, throat, central portion of breast, abdomen, vent and lower tail-coverts, axillaries and wing-lining, (except lower primary greater coverts, which are pale grey brown like the lower surface of the quills) intensely deep, at times somewhat *sooty*, at times almost chocolate brown; the crown and upper part of occiput are deep brown, never, I think, quite so intense as the lower parts, often considerably lighter and more purely brown; the anterior portion of the sides of the neck, behind the lower half of the ear-coverts, is always like the breast. Sometimes the deep colour of these parts extends behind the whole of the ear-coverts, and right round the back of the neck, forming a collar immediately behind the white basal occipital band, already noticed. Sometimes there is not the faintest trace of this, and sometimes again the collar is only represented by a larger or smaller nuchal patch. This is perhaps the most common form, and hence the name "*melanauchen.*"

The interscapulary region is a pale earthy brown, sometimes with a sandy tinge. The wings rather darker, but all the feathers margined with a pale whitey brown; and inner webs of quills darker, a sort of pale hair brown; central tail feathers slightly paler than tertiaries; rest of tail-feathers deep brown, but the outer web of the exterior feather white or nearly so, and the inner half or more of the inner web, pale whitey brown; rump and upper tail-coverts pale earthy or sandy brown, noticeably paler than the interscapulary region; flanks much the same colour as the rump.

The female has the chin, throat, abdomen, vent and lower tail-coverts white, with more or less traces of a very faint fawny tinge; a broad ill-defined, pale fawny band, which is sometimes feebly striated darker, covers the breast. The axillaries and lesser lower coverts about the ulna are deep brown, sometimes almost as deep as on the breast of the male.

The female wants the white frontal band and patch on the sides of the head, the white occipital band, the dark crown and dark sides of the neck, and of course the dark collar, or dark nuchal patch so common in the males; the whole top of the head is unicolorous or nearly so with the interscapulary region, though the feathers are generally feebly darker centred.

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♂	5·4	9·85	2·0	3·14	0·7	0·43	0·53
♂	5·5	10·5	2·2	3·3	0·65	0·47	0·52
♂	5·55	10·3	2·3	3·3	0·68	0·47	0·5
♀	5·4	10·0	2·0	3·11	0·69	0·48	0·52
♀	5·3	9·6	2·1	3·02	0·7	0·49	0·52
♀	5·23	9·7	2·0	3·03	0·63	0·45	0·51
♀	5·55	10·1	2·1	3·2	0·7	0·5	0·5

The irides were brown; the bill varied from pale whitey brown, bluish on lower mandible, to pearly white with a bluish

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tinge; the legs and feet were pale whitey brown, pale hoary fleshy, or pale brownish fleshy.

The male has a broad frontal band, cheeks, ear-coverts and a band from these round the base of the occiput, and a large patch on either side of the breast, white, in the case of the two latter often tinged brownish.

The base of the lower mandible, chin, throat, central portion of breast, abdomen, vent and lower tail-coverts, axillaries and wing-lining, (except lower primary greater coverts, which are pale grey brown like the lower surface of the quills) intensely deep, at times somewhat *sooty*, at times almost chocolate brown; the crown and upper part of occiput are deep brown, never, I think, quite so intense as the lower parts, often considerably lighter and more purely brown; the anterior portion of the sides of the neck, behind the lower half of the ear-coverts, is always like the breast. Sometimes the deep colour of these parts extends behind the whole of the ear-coverts, and right round the back of the neck, forming a collar immediately behind the white basal occipital band, already noticed. Sometimes there is not the faintest trace of this, and sometimes again the collar is only represented by a larger or smaller nuchal patch. This is perhaps the most common form, and hence the name "*melanauchen.*"

The interscapulary region is a pale earthy brown, sometimes with a sandy tinge. The wings rather darker, but all the feathers margined with a pale whitey brown; and inner webs of quills darker, a sort of pale hair brown; central tail feathers slightly paler than tertiaries; rest of tail-feathers deep brown, but the outer web of the exterior feather white or nearly so, and the inner half or more of the inner web, pale whitey brown; rump and upper tail-coverts pale earthy or sandy brown, noticeably paler than the interscapulary region; flanks much the same colour as the rump.

The female has the chin, throat, abdomen, vent and lower tail-coverts white, with more or less traces of a very faint fawny tinge; a broad ill-defined, pale fawny band, which is sometimes feebly striated darker, covers the breast. The axillaries and lesser lower coverts about the ulna are deep brown, sometimes almost as deep as on the breast of the male.

The female wants the white frontal band and patch on the sides of the head, the white occipital band, the dark crown and dark sides of the neck, and of course the dark collar, or dark nuchal patch so common in the males; the whole top of the head is unicolorous or nearly so with the interscapulary region, though the feathers are generally feebly darker centred.

The rest of the upper surface is much as in the male, but as a rule sandier and less earthy in tinge.

The males are distinguished at once from those of *grisea* by their dark crowns.

Both sexes are distinguished by their somewhat larger size, (wings in *grisea* taken at random measure:—

Males.—3·08; 3·07; 3·0; 3·01; 3·1.

Females.—2·99; 3·0; 2·9; 2·99; 3·06; 2·9; 2·87; 2·95) and their somewhat larger bills.

The females are further distinguishable by their whiter under surface, paler upper surface, and especially crowns, and by their deep colored axillaries, which in *grisea* are little darker than the breast. In this latter species the lesser lower-coverts about the *ulna* are dark brown in the female, but not nearly so deep as in *melanauchen*.

I found this species extremely common in the sandy wastes about Jodhpoor. Their habits are precisely those of their common Indian congener. Mr. Blanford found this common about the extreme south-west corner of Sindh near the Hubb River, but I never saw it in Sindh (though I found *grisea* common), and Captain Butler, who like myself has seen plenty of this latter, has not yet succeeded in meeting with *melanauchen* in Sindh.

This species extends into Jeysulmir, but it does not appear to cross the Aravallis, southwards into Oodeypoor. At any rate I saw none there, but plenty of *grisea* directly we approached the less desert tracts that fringe the Aravallis, whereas whilst I was *there*, I saw no *grisea* about Jodhpoor, only *melanauchen*. This was probably due to the drought, for Dr. King, who collected about Jodhpoor for two years, got no *melanauchen* but sent me specimens of *grisea* thence.

Occasionally this species strays much further east, as our museum contains a specimen shot in the Muttra District by Mr. Adam.

761.—*Calendrella brachydactyla.* 769.—*Galerida cristata, both very common.*

788.—*Columba intermedia;* very scarce, although in Jodhpoor as elsewhere in Rajpootana never allowed to be killed by *any* one, Europeans or Natives. In ordinary years they are said to be more common.

794.—*Turtur senegalensis.* 796.—*Turtur risorius, both rather rare.*

799.—*Pterocles arenarius.* 802.—*Pterocles exustus.* Only one or two of each seen, though further away from Jodhpoor where there *was* a little water, both species were numerous.

803.—*Pavo cristatus.*—Like the blue pigeon this species is sacred in Rajpootana and never shot, and in some parts it swarms to a degree almost incredible. Here, despite of drought and famine, a few were still to be seen.

822.—*Ortygornis ponticeriana.* 837.—*Houbara macqueeni; very scarce.* 840.—*Cursorius coromandelicus.* 840 *bis.*—*Cursorius gallicus; a few of each.*

To these I must add one species, which, although a *shore* bird, deserves special mention.

About every hamlet one or more pairs of 855.—*Lobivanellus indicus* were to be observed. In normal seasons there is outside each village one or more tiny ponds, at which the cattle drink, and it is on the banks of these that *L. indicus* is then as a rule to be found. But at the time I refer to, not one of these contained, or had contained for the last nine months, one drop of water.

Strange to say the Lapwings had taken up their quarters like the mad men of old (and mad they must have been to cling to such a place as Jodhpoor was when I was there); "amongst the tombs." Outside each village is a bovine Golgotha to which all the carcases of the cattle that die are, after being skinned, dragged, firstly apparently to ensure a pleasant smell (from a native point of view) in the suburbs, and, secondly, for the delectation of the village dogs, the jackals and vultures. Now at this time of drought it was invariably amongst the skeletons, generally inside the ribs of some hapless and recently deceased bullock, that I found *L. indicus*, (a veritable disgrace, as I remarked to several of them, to their genus) feeding on fly maggots, and small fragments of putrid flesh.

Of shore and water birds we procured the following at the small tanks and reservoirs above alluded to:—

848.—*Ægialitis cantianus.* 849.—*Ægialitis curonicus.* 871—*Gallinago scolopacinus.* 884.—*Tringa minuta.* 894.—*Totanus glottis.* 897.—*Totanus calidris.* 898.—*Himantopus candidus.* 899.—*Recurvirostra avocetta.* 903.—*Fulica atra.* 917.—*Xenorhynchus asiaticus.* 923.—*Ardea cinerea.* 930.—*Ardeola grayi*; 937.—*Platalea leucorodia.* 957.—*Spatula clypeata.* 958.—*Anas boschas.* 959.—*Anas pœcilorhyncha.* 961.—*Chaulelasmus streperus.* 964.—*Querquedula crecca.* 967.—*Fuligula rufina.* 975.—*Podiceps minor.* 1,005.—*Phalacrocorax carbo.*

Now, of course, this must not be supposed to exhaust the avifauna of the environs of Jodhpoor, in ordinary years, but it does, I believe, absolutely exhaust the avifauna of the 250 to 260 square miles of country that we worked, at this particular season of drought, and I may add that, from what I saw in

marching about elsewhere, there were several thousand square miles of Western Rajpootana, which at that time would scarcely have exhibited from end to end a dozen more species than those that I have above enumerated, altogether 81 in number. Any one who will compare this list with our list of the birds of Mount Aboo, Northern Guzerat and adjacent territories, (Vol. III, pp. 437-500, and Vol. IV, pp. 1-40), will see at once how large a number of species had been banished by the drought.

A. O. H.

A Contribution to the Avifauna of the Deccan.

By Messrs. Davidson, C.S., and Wenden, C.E.

This Paper is offered as a supplement to the "List of Birds collected in the vicinity of Khandalla, &c., &c.," by the Rev. Mr. Fairbank, and which appears in Vol. IV., Stray Feathers.

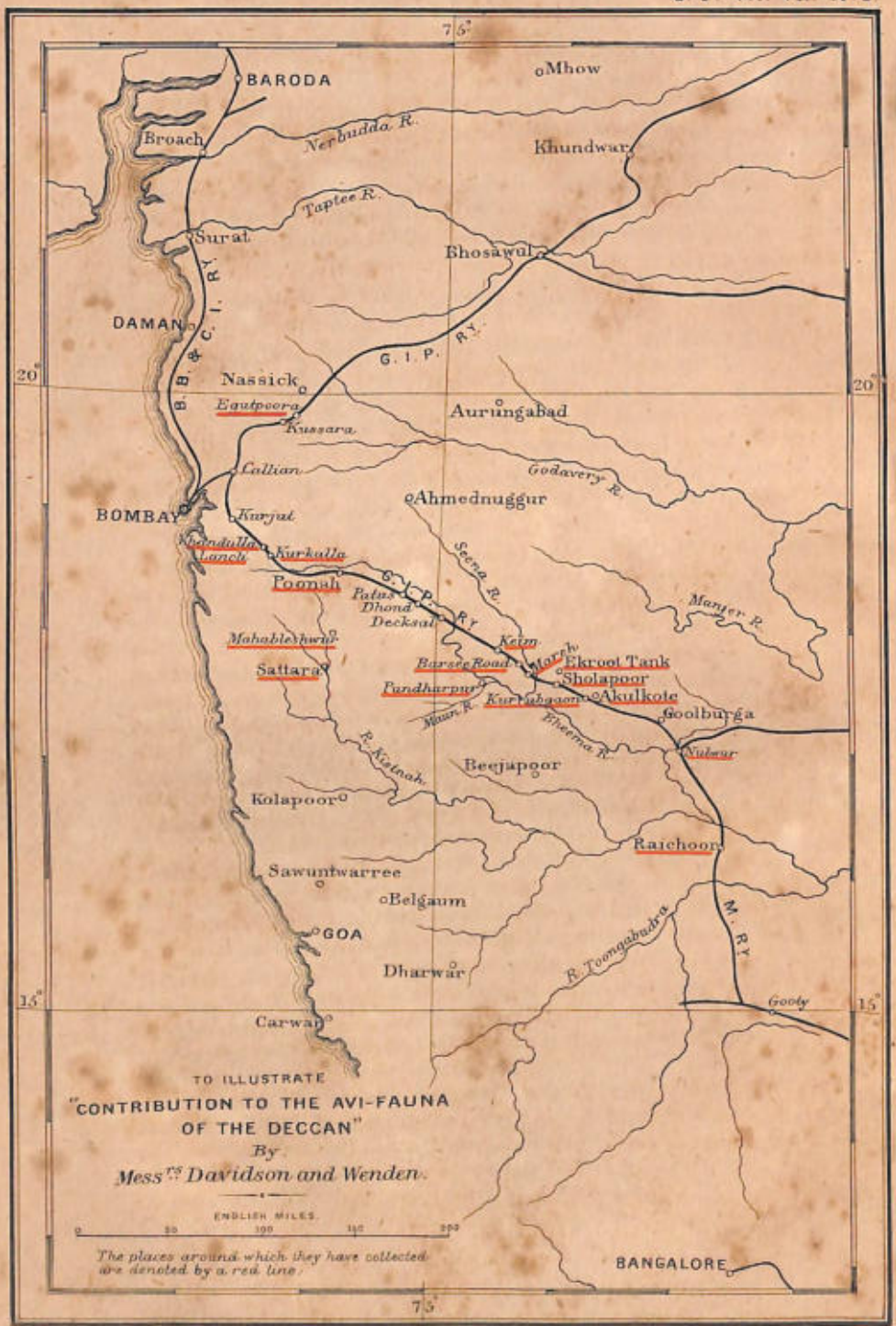
With this list of 255 species, the 103 which Mr. Fairbank notes and we omit, and the additional three observed by Captain Butler, the Avifauna of "the Deccan" is so far represented by 361 species. We note 44 species, which Mr. Fairbank does not.

Our list includes only those species which we have observed along or above the crests of the Syhadree Ghâts, and it has no pretence to represent any very deep research, but is simply a compilation of notes made by us at a time when we had no notion of publishing the result of our observations.

We have been at some pains to render our list reliable, entering no birds about which we have doubt, excepting in cases where the admission is made or implied.

The accompanying map will show that our tract of observation has been somewhat extended. It may be said to embrace the whole valley of the Bheema which, practically, runs for its entire course parallel to the south-east branch of the G. I .P. Railway. Indeed it is along this tract that the authors have chiefly worked, and their observations at Egutpoora, Khandalla, and Mahableshwar may be termed casual.

Egutpoora on the Thull Ghât, and Khandalla on the Bhore Ghât, may be described in almost the same words. They are both situated on the crest of the ghâts. The temperature is similar, ranging from a minimum of about 56° to a maximum of about 96.° They are both within the influence of the sea breeze, and the rainfall is very heavy, averaging for the four months, June to September, 155 inches at Khandalla, which is 1,793 feet above


75°
BARODA
Mhow
Broach
Nerbudda R.
Khundwar
Taptee R.
Surat
Bhosawul
B. B. & C. I. RY.
DAMAN
G. I. P. RY.
20°
Nassick
Egutpoora
Kussara
Aurungabad
Callian
Godavery R.
Ahmednuggur
BOMBAY
Kurjut
Bandulla
Lanch
Kurkulla
Seena R.
Poonah
Patus
Dhond
Deccan RY
Manjer R.
Mahableshwur
Keim
Barree Road
Ekroot Tank
Sholapoor
Sattara
Pandharpur
Kurdahgaon
Akulkote
Goolburga
Mann R.
Bheema R.
R. Kistnah
Nulwar
Beejapoor
Kolapoor
Raichoor
Sawuntwarree
Belgaum
GOA
M. RY.
R. Toongabadra
Dharwar
Gooty
15°
Carwar
TO ILLUSTRATE
"CONTRIBUTION TO THE AVI-FAUNA OF THE DECCAN"
By
Messrs Davidson and Wenden.
ENGLISH MILES
0 50 100 150 200
The places around which they have collected are denoted by a red line.
BANGALORE
75°

the sea, and 129 inches at Egutpoora, which has an elevation of 1,921 feet.

The scenery is grand. The hills are bold, castellated masses of Basaltic trap, numerously scarfed in wonderfully horizontal lines, the slopes between the escarpments, the tops and the bases, being densely clad with trees and undergrowth. The valleys and gorges are rugged, deep and gloomily silent, except for the sweet voices of the birds and the occasional music of some mimic waterfall or the rippling of some stream—perfect paradises for birds—(this from a "summer" point of view of course!)

Two miles up from Khandalla stands Lanoli, the head of the Bhore Ghât incline. Thence the line passes through a tolerably level valley, and the hills on either side gradually diminishing become more and more bare until Poona is reached, and the characteristic type of Deccan scenery commences.

Poona, 1,819 feet above the sea, has a rainfall averaging about 27 inches in the year, and taking the register of 5 years, the maximum temperature has not exceeded 96°, whilst the minimum is 60.°

Just about the city and the cantonment, there are fine groves of trees and verdant patches of garden land, which the fine canal from Kurrukwasla Reservoir, 12 miles from the town, bids fair to increase.

From Poona onwards, along the line of rail to Goolburga 1,492 feet above the sea, the country is parched and barren, with scarcely a trace of vegetation, excepting near villages where good wells exist, or on the banks of rivers. It is a succession of undulations—dreary, low, stony hills or ridges capped with boulders of trap, hidden in yellow spear-grass, and here and there a hollow or slope of rich black soil in which the sturdy, stolid, Mahratta ryots carry on a scanty cultivation.

In the neighbourhood of villages, mangoe topes and gardens are to be found, which afford shelter to our feathered friends, and Peepuls and Banyans, which form the invariable accompaniment to Hindoo temples, with an occasional Neem, are not absent, while in favoured parts the banks of nullas are fringed with thick groves of Babul and date palms; but, with these exceptions, the region is treeless, whether we look to the low-lying fields, the gravelly sea above, or the rough, barren ridges which crown all.

It is written in one of the Revenue Commissioner's reports that it was "proposed to grant remission of rent, &c., according to the number of healthy trees reared by a cultivator on the boundaries of his fields, but the ryots would not do it on account of the shade being injurious to the crops and the trees attracting birds!"

Leaving Goolburga (where there is a magnificent old fort, on one of the bastions of which is mounted a huge pivot cannon, 29 feet 10 inches long, and where there are some curious old domed tombs), a few miles, and the geological features change. Sudden as the passing from day to night in this country, where we miss our sweet English twilight, is the change from the round weather-worn trap boulders of dark dingy hue to the pearl grey limestone which shows above the surface at eccentric angles—here, level as a billiard table in layers so true that immense blocks or thin slabs with perfectly paralled beds can be procured without difficulty—there, heaved up, with the seams pointing to the sky, rugged, fractured and distorted. But the general aspect of the country remains unchanged. The monotonous undulations still depress one, the absence of trees is still conspicuous, and the want of cultivation is still more marked than in the country we have already passed through. No irrigation, no gardens.

The only improvement that strikes a passing observer is in the village huts, which, being built of and roofed with the delicate-coloured limestone, look clean and glistening—an illusion soon dissipated on a closer examination.

Here, as indeed all along the route from Poona, almost every village shows traces of fortification, sometimes in a fair state of preservation, but oftener in ruins. Numerous prettily-shaped Martello towers are observed, and every village except the quite modern ones has a dense belt of prickly pear surrounding it; their defence against the hordes of horsemen that perpetually surged through these districts, overwhelming them in a sea of anarchy and desolation until the strong hand of the British Government established peace and order.

Yet a little further on, just 18 miles through the limestone basin, and another change occurs equally suddenly. The whole surface is one continuous plain, more thickly cultivated and with a regular fall towards the Kistna River, into which flows the Bheema with which we have been marching. Before reaching Nalwar, 1,325 feet above the sea, the limestone disappears, and the whole plain is studded with granite hills of the most abrupt and grotesque forms.

East of the line, abreast of the village of Nulwar, commences a continuous range, extending in a south-easterly direction to beyond Koilconda, whilst isolated hills are seen right and left of the line as far as Raichore, feet above the sea, the most southern limit of our range of observation.

Such rugged, wild-looking hills! as though gigantic devils had amused themselves by pitching up heaps of immense blocks, haphazard. Stones balanced one upon the other in the most

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delicate manner, others packed as closely and nicely, as if some tidy neat sort of devil had attempted to pack them in the smallest possible space!

These rugged masses are all more or less covered with scrub jungle, whilst the valleys are tolerably well wooded and watered, and we are convinced that a more thorough search through this range would add largely to our list of birds. The jungles contain a few tigers and bears, numerous panthers and a sprinkling of sambur and cheetul, and on the plains we have seen a few herds of black buck and chinkara. But it is heart-breaking work hunting them; bruin and his feline friends are pretty secure in the thousands of dens, afforded by the tossed-up granite, and the deer tribe is scarce at the best.

The temperature increases as we leave Poona, journeying south until it is as hot at Raichore as in the central Provinces, without the advantage of any bracing cold season. The rainfall varies but little between Poona and Raichore. The average fall for a period of 8 years was as follows:—

Barsi	...	...	25·62.
Mareh	...	...	20·47.
Sholapoor	...	...	23·49.
Pundharpur	...	...	17·86.

Beyond Sholapoor, we have no records, but experience teaches us that the fall between that station and Raichore ranges between 20 and 25 inches. At Indapur, a taluka in the Sholapoor Collectorate, the average for 7 years, from 1866 to 1872 is given as 16·59″, but for five years, 1862 to 1867, the average is said to have been only 5·85″. Where, in our list we have used the term collectorate, we allude to Sholapoor. The taluka of Sholapoor does not deserve any very special mention. Its general appearance is similar to that which we have endeavoured to describe as existing between Poona and Goolburga. The Revenue Commissioner's report says of this taluka: "Its chief feature is the Ekrook Tank, formed by damming up a valley three miles north of the city of Sholapoor. Three aqueducts sally forth from this magnificent reservoir, carrying prosperity to the more enlightened of the cultivators who, leaving the groove of their forefathers, pay for water wherewith to irrigate their fields." Next to the fact that their fathers had not used water, their greatest objection to it is that it is too cold! Then in the station of Sholapoor itself there are two fine tanks which seldom or ever dry up. One under the walls of the noble old fort, and one in "camp," and there is the Motee Bâgh, a perfect oasis in the desert, with a magnificent grove of trees, its "Lily Tank" and a nullah which flows during the hottest seasons. It was in this place that we collected some of our rarest migrants.

Altogether, the country between Poona and Raichore is not prepossessing. Our sketch is meant to represent its appearances during the hot season when the whole surface is exposed and bare; but, under the most favorable aspects, when every available spot is under cultivation, it is not much more pleasing for what landscape can please one if it be devoid of foliage or water?

The unirrigated crops are either "khurreef" or "rubbee" accordingly as the season is an early or late one. They consist of Bajra, Jowar, Gram, Toor, Wheat, Koorasnee Oorud, Moong, &c., and in the vicinity of Sholapoor, Akulkote, Nulwar and Kaichore, a fair amount of rice is cultivated.

The tract is not calculated to possess a very large Avifauna.

Mahableshwar, 4,700 feet above the sea, possesses a cool climate and the rainfall is excessively heavy.

The ground over which Davidson alone collected, in the Satara districts, extended from the valley of the Kistna to the crest of the ghâts. In the station of Satara the mean temperature for 6 years between 1871 and 1876, ranged between 86°6 and 68°·9. We have no record of the rainfall.

We are indebted to Mr. H. E. M. James for much of the information which is embodied in this very feeble description of our tract of observation, and to the editor for entirely revising our nomenclature, which, having no works but Jerdon's at hand to consult, was to a great extent, we fear, obsolete.

2.—Otogyps calvus, *Scop.*

Nest with one egg found by D. in Sholapoor Districts, 26th December 1874, and another with a single egg on 28th February 1875. We saw numbers in the interval. Some nests near villages were in high trees, and others, far away from habitations, were in much smaller trees.

4.—Gyps indicus, *Scop.* ? G. pallescens, *Hume.*

At all seasons moderately common in the Sholapoor Districts. It breeds on some of the Satara cliffs in Tadli, and also in the valley of the Sina at Naywi.

5.—Gyps bengalensis, *Gmel.*

The commonest Vulture at all seasons. D. got its nest with a young bird, just able to fly, in the Satara District, early in January.

6.—Neophron ginginianus, *Lath.*

Very common. They lay from beginning of February to the and of March, the majority laying only one egg; but, we have found them with two.

9.—Falco peregrinator, *Sund.*

D. daily saw a pair chasing one another near Adul, on the Khoinoor River, Satara Districts.

11.—Falco juggur, *Gray.*

Very common in the dry districts.

Found our first nest with one fresh egg on 4th January, and our last, with three almost fresh eggs, on 14th March.

On the last nest, built in a Neem tree, about 12 feet from the ground the male bird was sitting, while the female was perched on another tree a hundred yards away.

16.—Falco chicquera, *Daud.*

Very common, breeding abundantly all over the districts. First nest observed on 28th February, and the last 28th March. Four nests, each contained three fresh eggs. Some birds certainly breed prior to the first date.

17.—Cerchneis tinnuncula, *Lin.*

Common throughout the district in the cold weather, and D. thinks it breeds at Mahableshwur.

18.—Cerchneis naumanni,* *Fleish.*

Common in the cold season. D. one evening, on 4th January, in the Sholapoor District, saw a flock of several hundreds roosting on about twenty big trees near a village. He did not shoot a bird, but he has no doubt that it was this species. In the middle of May it was apparently breeding, *i.e.*, it was "calling" at the Genna Falls and Arthur's Seat, at Mahableshwar.

23.—Astur badius, *Gmel.*

Common at all seasons. Nest with two fresh eggs found in a mangoe tree on 31st March 1875.

24.—Accipiter nisus, *Lin.*

Common in cold weather.

27.—Aquila mogilnik, *S. G. Gm.*

A young male shot in August.

* In this and some other cases, not having seen specimens, I cannot be certain whether the specific name has been correctly assigned—the bird referred to *may* be *C. pekinensis*. I have never yet examined a Southern Indian example of a Lesser Kestril.—A. O. H.

28.—Aquila clanga, *Pall.*

Observed several times, and believed to breed near the Ekroot tank.

29.—Aquila vindhiana, *Frankl.*

Extremely abundant. Eggs taken from 28th October to 12th February. Some single eggs were set. One nest had three, but the majority only two eggs. An eagle's egg, which almost certainly belonged to this species, was brought to D. on 30th September.

31.—Hieraetus pennatus, *Gmel.*

Not uncommon along the River Bhima in the cold season, and may perhaps breed, but all the specimens D. has seen were immature. A single young bird was obtained on the Mann River, Sangola, on 11th December 1875.

33.—Nisaetus fasciatus, *Vieill.*

A nest with a single young bird just hatched out was found on 10th February. The hen was shot, and within two days the male appeared with another female and the young one disappeared. The pair went to another old nest of enormous size on an adjacent tree. Although several people were sent to the village officials with instructions to have the eggs taken, nothing was sent to us but two eggs of *N. ginginianus*, which had of course been taken from some other nest. Eggs were taken at Kassigaum on 13th January 1876, slightly set. Other eyries with young birds were seen at Dhotri and Subjar.

38.—Circaetus gallicus, *Gmel.*

Not uncommon in the bare parts of the district from September to the beginning of April. We have not observed it breeding.

39 *bis*.—Spilornis melanotis, *Jerd.*

Shot in September and observed at other seasons, but not known to breed in the district.

45.—Buteo ferox, *S. G. Gmel.*

D. shot a specimen in February on the Pundharpur tank.

50.—Circus cyaneus, *Lin.*

51.—Circus macrourus, *S. G. Gmel.*

52.—Circus pygargus, *Lin.*

We are not sure about these three Harriers, but it is certain that one or more of them frequent the district in the cold season.

54.—Circus æruginosus, *Lin.*

Occasionally observed in the cold season.

55.—Haliastur indus, *Bodd.*

Rather rare; but on the 16th January D. shot a female from a nest (no eggs) on a small bush growing out of a rocky bank, 30 or 40 feet high, on the Bhima River. On dissecting her he found that the eggs would probably have been laid a week later. A nest with one egg and a young bird was taken on an island in the River Bhima, on 24th April. We observed a nestling on the Dew River, 14 miles from Poona, on 14th February.

56.—Milvus govinda, *Sykes.*

The only one identified by D. was *M. govinda.* It breeds freely from middle of September to middle of March. The greatest number of eggs found in a nest was three.

57.—Pernis ptilorhyncha, *Tem.*

Rather rare about Sholapoor. Saw a pair breeding on 6th February. They were very noisy.

59.—Elanus cæruleus, *Desfont.*

Moderately common. A nest with three eggs was taken on 10th July 1875. It breeds abundantly in Caladgi District, some 50 miles from Sholapoor, in December.

60.—Strix javanica, *Gm.*

Pretty common at all seasons, but although we know them to breed about Sholapoor, we were not fortunate enough to secure their eggs. D. got a nest with *seven* young birds in the Satara District, in February.

65.—Syrnium ocellatum, *Lesson.*

Observed and shot at Barsee, in May. D. has also seen it at Akulkote. It is very common in Satara, where a nest with one fresh egg was taken on 8th February, and another nearly perfect egg was taken out of the female.

68.—Asio accipitrinus, *Pall.*

Occurs in numbers all over the district in the cold weather.

69.—Bubo bengalensis, *Franklin.*

Common along all the brooks and rivers. Found numerous nests *(facing all points of the compass)* in November and December. Six was the greatest number of young or eggs observed in one nest. All the eggs, with the exception of one, which lay on a bare ledge of rock, were found in naturally formed holes in clay banks.

72.—Ketupa ceylonensis, *Gmel.*

On 14th February, in the Satara Districts, D. shot a hen from a nest which contained an addled egg. We have not observed this species in the Sholapoor Districts.

74.—Scops pennatus, *Hodgs.*

Not very uncommon at any season, but chiefly observed in cold and rainy months.

76.—Carine brama, *Tem.*

Very common. Breeds January to middle of March. Generally lays four to five eggs, but D. noticed *three* birds sitting on two eggs in one hole!

81.—Ninox lugubris, *Tick.*

Rare, but specimens having been obtained both in cold and rainy seasons, it probably breeds about Sholapoor.

82.—Hirundo rustica, *Lin.*

Common in the cold season.

84.—Hirundo filifera, *Stephens.*

Common and breeds.

85.—Hirundo erythropygia, *Sykes.*

Common and breeds.

86.—Hirundo fluvicola, *Jerd.*

Very common. Breeds in great numbers under the Railway arch over the standing water of the Sholapoor tank.

89.—Cotyle sinensis, *Gray.*

Tolerably common. At Sangola it breeds singly, in river banks, in December. On the banks of the Bhima, D. got a single nest with three fresh eggs, in March.

90.—Ptionoprogne concolor, *Sykes.*

In the Sholapoor Districts it breeds in abundance in the rains and in February. At Egutpoora it was breeding in the verandah of the Engineers' bungalow in the middle of March and first week in August. At Lanoli on 20th March.

98.—Cypselus melba, *Lin.*

Permanent resident in Satara. Breeds, D. thinks, about the cliffs, and on old buildings in the fort there.

100.—Cypselus affinis, *Gray.*

Common all over the district.

102.—Cypselus batassiensis, *Gray.*

Very rare in the dryer portions of the Deccan. Tolerably numerous in the palm groves near Nulwar. D. saw three amongst some small palms about five miles from Akulkote.

107.—Caprimulgus indicus, *Lath.*

Moderately common and undoubtedly breeds, but we did not obtain its eggs.

112.—Caprimulgus asiaticus, *Lath.*

Common ; nests found in August.

117.—Merops viridis, *Lin.*

Common and breeds.

120.—Merops persicus, *Pall.*

D. got a young specimen near Pundharpur in October. They are not common, and appear only in the cold season.

123.—Coracias indica, *Lin.*

Common, but does not breed.

129.—Halcyon smyrnensis, *Lin.*

Very abundant. Breeds in March and April.

134.—Alcedo bengalensis, *Gmel.*

Fairly common and breeds. A nest taken at Satara in June.

136.—Ceryle rudis, *Lin.*

Common. Apparently breeds at all seasons, except the very hot months.

144.—Ocyceros birostris, *Scop.*

Moderately numerous in suitable localities.

148.—Palæornis torquatus, *Bodd.*

Common, breeding in December, January and February.

149.—Palæornis purpureus, *P. L. S. Müll.*

Abundant in the Satara Districts, where it is a permanent resident. It breeds in the plains there in December and on the ghâts in March. During the rains it is very common throughout the Sholapoor Districts.

151.—Palæornis columboides, *Vigors.*

Moderately common along the very top of the ghâts, and breeds there.

An old bird shot, whilst feeding a young one, in March.

160.—Picus mahrattensis, *Lath.*

Commonest in suitable localities, and certainly breeds.

166 *bis.***—Chrysocolaptes delesserti,** *Malh.*

Not uncommon on the ghâts. Nest, in a small tree, near the roots, found in March.

171.—Gecinus striolatus, *Blyth.*

A Green Wood-pecker, probably this one, observed near the top of the Bhore Ghât in September. *Not thoroughly identified.*

188.—Yunx torquilla, *Linn.*

As a winter visitant, moderately common. One obtained near Poona on 10th February was moulting.

194.—Megalæma viridis, *Bodd.*

Common in suitable localities and breeds. W. has frequently noticed them climbing like a Wood-pecker, but has not heard them tap.

197.—Xantholæma hæmacephala, *Müll.*

Very common and breeds.

199.—Cuculus canorus, *Linn.*

Appears sparingly during the rains and cold weather.

201.—Cuculus poliocephalus, *Lath.*

Scarce, but seen and procured during the rainy and cold seasons.

203.—Cuculus micropterus, *Gould.*

Common during the rains.

212.—Coccystes jacobinus, *Bodd.*

Common in the rains and believed to breed; but not proved to do so.

214.—Eudynamys honorata, *Lin.*

Common in the rains and breeds.

216.—Rhopodytes viridirostris, *Jerd.*

A nest with two eggs taken at Nulwar in July. It is tolerably common in the jungles there.

217.—Centrococcyx rufipennis, *Illiger.*

Common and breeds.

219.—Taccocua leschenaultii, *Lesson.*

Common in the Nulwar jungles and observed at top of the Bhore Ghât. Common in the bare hills at Satara. Secured at Lanoli.

226.—Æthopyga vigorsi, *Sykes.*

Fairly common along the ghâts and breeds at Mahableshwar.

232.—Cinnyris zeylonica, *Lin.*

Found all over the Deccan. Commoner in the well-watered parts, and breeds.

234.—Cinnyris asiatica, *Lin.*

Common and breeds.

254.—Upupa epops, *Lin.*

A single specimen procured in the cold season. Probably not uncommon.

255.—Upupa nigripennis, *Gould.*

Very common and breeds.

256.—Lanius lahtora, *Sykes.*

Common, and breeds abundantly in the Poona and Sholapoor Collectorates at the end of the hot weather. W. has noticed it breeding at Nulwar and Raichore. D. observed that it was very rare in the Satara Districts.

257.—Lanius erythronotus, *Vigors.*

Very common in Satara; breeding freely in the beginning of the rains; observed at Lanoli. Rare in the Sholapoor District and does not appear to breed there.

260.—Lanius vittatus, *Valenc.*

Abundant, and breeds all over the Deccan.

265.—Tephrodornis ponticeriana, *Gmel.*

Common at the heads of the Bhore and Thull Ghâts, and Mr. Hume identified two specimens procured by W. at Nulwar as young birds.

268.—Volvocivora sykesii, *Strickland.*

A rather common winter visitant.

272.—Pericrocotus flammeus, *Forster.*

Not uncommon along the tops of the ghâts.

273.—Pericrocotus brevirostris, *Vigors.*

D. saw a flock of five or six of this at Sangola, but they are not common in these districts.

276.—Pericrocotus peregrinus, *Lin.*

Common, and breeds in the rains.

278.—Buchanga atra, *Herm.*

Common and breeds.

281.—Buchanga cærulescens, *Lin.*

Common on the ghâts; noticed on one or two occasions during the cold weather, at Sholapoor.

288.—Muscipeta paradisi, *Lin.*

Fairly scattered all over the Deccan. D. feels certain that it breeds at Satara. We noticed at Sholapoor all the birds seen in the rains were short-tailed specimens.

292.—Leucocerca albofrontata, *Frankl.*

Tolerably common, and breeds.

293.—Leucocerca pectoralis, *Jerd.*

Tolerably common. A nest with three eggs taken at Egutpoora on 6th September.

295.—Culicicapa ceylonensis, *Swains.*

Very common in Satara, and undoubtedly breeds there.

297.—Alseonax latirostris, *Raffles.*

Procured at Sholapoor in October, and at Egutpoora in the same month.

301.—Stoporala melanops, *Vigors.*

A visitant at Sholapoor in rains and cold weather.

305.—Cyornis tickelli, *Blyth.*

A few come to Sholapoor in the rains and cold weather. W. procured a specimen as late as March.

307.—Cyornis ruficauda, *Swains.*

A single specimen obtained at Sholapoor in July.

323 *bis*.—Erythrosterna parva, *Bechst.*

A specimen procured at Sholapoor in February. It is not rare in the cold season.

342.—Myiophoneus horsfieldii, *Vigors.*

Scattered all over the Deccan in suitable localities. W. got two nests, one on the Bhore Ghât on 5th August, and one on the Thull Ghât on 17th of same month. That on the Bhore Ghât was built on a ledge of rock some 15 feet *in* from the face of a Railway tunnel where 30 or 40 trains daily passed within a few feet of it. That on the Thull Ghât was in a cutting at the *entrance* of a tunnel and about the same height above and from the rails as the one on the Bhore Ghât. In both cases the eggs were much discolored by the smoke from engines, but on being washed, W. observed that one of the three eggs in each nest was of a decidedly *greenish blue*, finely speckled and splashed with pinky brown, while the others were of the *pale salmon-pink*, as described in Mr. Hume's Rough Draft of "Nest and Eggs." The male bird was sitting on one of the nests and was shot. W. saw numerous other nests, some high up on cliffs, beyond the reach of a 15-foot ladder. Two nests in holes in trees were reported to him, but he could not go to examine them. The nests were about 4 inches diameter by 2½ inches deep, inside, and 8 to 10 inches broad outside, and not more than 10 inches high. The foundation portion contained a great deal of clay and earth which seemed to be necessary to secure the nests in positions so exposed to the heavy gusts of winds which prevail on these ghâts during the monsoon.

345.—Pitta brachyura, *Lin.*

A visitant in September and October and in April and May at Sholapoor.

351.—Cyanocincla cyana, *Lin.*

A common winter visitant throughout the Deccan.

353.—Orocetes cinclorhynchus, *Vigors.*

Moderately common at Sholapoor and observed at Poona and Nulwar during the rains.

385.—Pyctoris sinensis, *Gmel.*

Tolerably common in the Sholapoor District; more so in the better-wooded parts, where it breeds.

389.—Alcippe poiocephala, *Jerd.*

Moderately common at the top of the Satara Ghâts.

404.—Pomatorhinus horsfieldi, *Sykes.*

Very common along tops of ghâts. D. got a nest with two eggs in March.

436.—Malacocircus malcolmi, *Sykes.*

Common, and breeds.

438.—Chatorhea caudata, *Dum.*

Very common and breeds.

452.—Ixus luteolus, *Less.*

Pretty common in the Nulwar jungles.

460 *bis*.—Otocompsa fuscicaudata, *Gould.*

Rather common in wooded localities. D. took several nests in the Satara Hills in March and the two following months.

462.—Molpastes hæmorrhous, *Gmel.*

This is the common species at Sholapoor.

463.—Phyllornis jerdoni, *Blyth.*

Two specimens procured and others observed at Egutpoora, in November.

468.—Iora typhia, *Lin.*

Our Iora is of the *typical zeylonica* form. It is common and breeds abundantly in July. W. observed a pair building at Lanoli late in August.

470.—Oriolus kundoo, *Sykes.*
Common, and breeds in June and July.

473.—Oriolus ceylonensis, * *Bonaparte.*
A straggler in the Deccan.

475.—Copsychus saularis, *Linn.*
Tolerably common. Nest taken at Satara, in May.

479.—Thamnobia fulicata, *Linn.*
Abundant, and breeds from April to July.

481.—Pratincola caprata, *Linn.*
Common, and breeds from April to July.

483.—Pratincola indica, *Blyth.*
A very common winter visitant.

497.—Ruticilla rufiventris, *Vieillot.*
Fairly numerous during cold season.

507.—Larvivora superciliaris, *Jerd.*
Moderately common during rains and cold weather.

530.—Orthotomus sutorius, *G. R. Forst.*
Common, and breeds in June and July.

534.—Prinia socialis, *Sykes.*
Common. Nests taken in August.

539.—Cisticola cursitans, *Frankl.*
Common in all grass lands. It breeds in the rainy season.

543.—Drymoica inornata, *Sykes.*
Common, and breeds.

553.—Hypolais rama *Sykes.*
Common at all seasons.

562.—Phylloscopus indicus, *Jerd.*
One specimen only procured at Kurkulla, between head of Bhore Ghât and Poona, in February.

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* Probably even if this supposed species be admitted to be distinct, the Deccan bird is *O. melanocephalus.*—Ed.

581.—Sylvia jerdoni, *Blyth.*

Commonest in Sholapoor during the cold season. We procured it in February, April and May.

589.—Motacilla maderaspatana, *Gm.*

Common, and breeds in cold weather and rains.

591 *bis.*—**Motacilla dukhunensis,** *Sykes.*

Common throughout the district during the winter months.

592.—Calobates melanope, *Pall.*

Common everywhere during winter.

593.—Budytes cinereocapilla, *Savi.*

A common winter visitant. Observed at Poona as late as the end of March.

594.—Budytes citreola, *Pallas.*

Common in winter throughout the district.

596.—Pipastes maculatus, *Hodgs.*

A common winter visitant.

600.—Corydalla rufula, *Vieillot.*

Common in the cold weather.

631.—Zosterops palpebrosa, *Temm.*

Not rare in the Satara Districts.

648.—Machlolophus jerdoni, *Blyth.*

Specimens procured at Lanoli in August and at Egutpoora in March. They certainly breed at these places, as in September, at the latter place. W. observed two parent birds with four young ones capable of flying out very short distances.

660.—Corvus macrorhynchus, *Wagl.*

Common and breeds from April to June.

663.—Corvus splendens, *Vieillot.*

Common, and breeds from May to July.

674.—Dendrocitta rufa, *Scop.*

Common along the ghâts.

684.—Acridotheres tristis, *Linn.*

Common, and breeds in May and June.

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687.—Sturnia pagodarum, *Gmel.*

Not quite so common as *tristis*. Breeds at Satara in May.

690.—Pastor roseus, *Linn.*

A, to cultivators, distressingly numerous winter visitor.

694.—Ploceus philippinus, *Lin.*

Common, and breeds in July.

699.—Munia punctulata, *Lin.*

Common and breeds.

703.—Munia malabarica, *Linn.*

Very common, and breeds at all seasons.

706.—Passer indicus, *Jard and Selby.*

Very common, breeding at all seasons.

711.—Gymnoris flavicollis, *Franklin.*

Rare, but D. found it breeding in the Sholapoor Districts in April.

721.—Euspiza melanocephala, *Scop.*

A common winter visitant.

722.—Euspiza luteola, *Sparrm.*

Observed by D. in February, at Akulkote.

756.—Mirafra erythroptera, *Jerd.*

Very common, and dozens may be seen all along the line between Poona and Raichore; many of them perching on the telegraph wires.

758.—Ammomanes phœnicura, *Frankl.*

Very numerous. Seen with No. 756 also perching on telegraph wires. Breeds plentifully throughout the Poona and Sholapoor Districts in April and beginning of May. Their nests, as a rule, are built in a hole in a bank, either of a river or a nulla, but sometimes in an ordinary *bund*. Nest well lined with hair and wool and warmly made—like a robin's. All the nests taken by D. during last season contained but two eggs each, but a nest containing four young Larks, which he believed to be of this kind, was brought to him in May.

760.—Pyrrhulauda grisea, *Scop.*

Very common, and appears to breed at all seasons.

765.—Spizalauda deva, *Sykes.*

Very numerous and breeds in July and August.

767.—Alauda gulgula, *Frankl.*

Not uncommon in Satara. D. took what he believed to be a nest of this species in May.

769.—Galerida cristata, *Linn.*

D. observed it to be common on the top of the Satara ghâts.

773.—Crocopus chlorigaster, *Blyth.*

Observed, but rarely, about Sholapoor. Commonest at Lanoli and Egutpoora. Nests taken on the Satara Hills, where it is common in March. Observed at Nulwar.

788.—Columba intermedia, *Strickland.*

Very common.

793.—Turtur meena, *Sykes.*

Common in Satara and the hills about.

794.—Turtur senegalensis, *Lin.*

Common throughout the district, where it also breeds.

795.—Turtur suratensis, *Gmel.*

Common in Sholapoor during the rains.

796.—Turtur risoria, *Linn.*

Common, and breeds.

797.—Turtur tranquebarica, *Herm.*

Common, and breeds.

800.—Pterocles fasciatus, *Scop.*

Abundant in several suitable localities, but not commonly distributed. Breeds in March.

802.—Pterocles exustus, *Temm.*

Very common, and appears to breed at all seasons.

803.—Pavo cristatus, *Linn.*

Common in suitable localities.

813.—Gallus sonneratii, *Temminck.*

Common along all the ghâts, and observed in the granite hills at Nulwar.

814.—Galloperdix spadiceus, *Gmel.*

Common along the ghâts. Nest procured in March, near Lanoli.

819.—Francolinus pictus, *Jard and Selby.*

Common, and breeds in September.

822.—Ortygornis ponticeriana, *Gmel.*

Common; breeding in March and again in the rains.

826.—Perdicula asiatia, *Lath.*

Common in the hills at Satara and Nulwar.

827.—Perdicula argoondah, *Sykes.*

Very common, and breeds.

828.—Perdicula erythrorhyncha, *Sykes.*

Only one specimen procured at Sholapoor, and one near Poona. Observed in the Satara hills.

829.—Coturnix communis, *Bonnaterre.*

Very common between November and end of March. This year (1877) this appeared in the Deccan early in September.

830.—Coturnix coromandelica, *Gmel.*

Very common, and breeds from about first August to middle of October.

832.—Turnix taigoor, *Sykes.*

Sparingly scattered all over the district, and breeds.

835.—Turnix dussumieri, *Tem.*

Common and breeds.

836.—Eupodotis edwardsii, *Gray.*

Common and breeds. It is very much more common during the rains and cold season than at other times.

839.—Sypheotides aurita, *Latham.*

Common throughout the plains of the Deccan, breeding freely in the vicinity of Sholapoor during September and October.

840.—Cursorius coromandelicus, *Gmel.*

Common, and breeds.

842.—Glareola orientalis, *Leach.*

D. has seen it on the River Bhima during the cold season.

843.—Glareola lactea, *Temm.*

D. observed it to be common on the River Bhima in the cold season.

845.—Charadrius fulvus, *Gm.*

Very rare; observed on two or three occasions only.

849.—Ægialitis curonicus, *Gm.*

Common, and breeds from December to May.

852.—Chettusia gregaria, *Pallas.*

Common in some parts of the district during the cold weather.

855.—Lobivanellus indicus, *Bodd.*

Common, and breeds from March to August.

856.—Lobipluvia malabarica, *Bodd.*

Common; breeding from May to July.

858.—Esacus recurvirostris, *Cuvier.*

Not uncommon.

859.—Ædicnemus scolopax, *S. G. Gmel.*

Not uncommon.

865.—Grus communis, *Bechstein.*

Tolerably common during the cold season.

866.—Anthropoides virgo, *Linn.*

This is the *kullum* of the Deccan, which it visits in immense flocks in the cold season.

870.—Gallinago sthenura, *Kuhl.*

Common in the cold weather.

871.—Gallinago scolopacina, *Bonap.*

Somewhat commoner than *G. sthenura*, during the cold weather.

872.—Gallinago gallinula, *Linn.*

Common in the cold season, but far less so than either of the two last species.

873.—Rhynchæa bengalensis, *Linn.*

Common. Observed at all seasons and we believe breeds here.

877.—Numenius lineatus, *Cuv.*

Observed, but very rarely.

880.—Machetes pugnax, *Linn.*

D. got one specimen from a small flock which arrived at Pundharpur early in September last. He saw another large flock towards the end of the month.

882.—Tringa subarquata, *Güld.*

W. shot two or three at Sholapoor, in June 1874.

884.—Tringa minuta, *Leisler.*

Very common in the cold weather.

891.—Actitis glareola, *Lin.*

Very common in the cold season.

892.—Actitis ochrophus, *Linn.*

Very common in the cold season.

893.—Actitis hypoleucus, *Linn.*

Also very common.

894.—Totanus glottis, *Linn.*

A common cold weather visitant.

895.—Totanus stagnatilis, *Bechstein.*

This also is common.

897.—Totanus calidris, *Linn.*

Observed, but rarely.

898.—Himantopus candidus, *Bonn.*

Common in the cold season.

901.—Hydrophasianus chirurgus, *Scop.*

Sparingly observed. Believed to breed.

902.—Porphyrio poliocephalus, *Lath.*

Sparingly scattered all over the district in suitable localities, and believed to breed.

903.—Fulica atra, *Linn.*

Very common. Probably breeds.

905.—Gallinula chloropus, *Linn.*

Not rare.

907.—Erythra phœnicura, *Pennant.*

Tolerably common, and breeds. Five nests taken at Nulwar in July.

909.—Porzana maruetta, *Leach.*

Not rare. D. has obtained several specimens.

915.—Leptoptilus argala, *Lath.*

Very rare, but we have observed it. D. saw one feeding with a lot of Vultures.

916.—Leptoptilus javanicus, *Horsfield.*

W. is sure that he has seen this bird on more than one occasion about the marshy tanks on the outskirts of the Nulwar jungles. It is, however, a very rare visitant, and seen in the rainy season only.

917.—Xenorhynchus asiaticus, *Lath.*

D. is almost certain that he has observed this species.

918.—Ciconia nigra, *Linn.*

D. observed it in two places in the Sholapoor Collectorate—once in November and again in January.

919.—Ciconia alba, *Belon.*

Moderately common.

920.—Melanopelargus episcopus, *Bodd.*

Common; generally seen in pairs. D. got nests in the Sholapoor District in December and January, and observed birds breeding at Satara in February.

923.—Ardea cinerea, *Linn.*

Common. Apparently does not breed in the Sholapoor District.

924.—Ardea purpurea, *Linn.*

Sparingly observed.

925.—Herodias torra, *Buch. Ham.*

Abundant.

926.—Herodias intermedia, *Hasselt.*

Common.

927.—Herodias garzetta, *Linn.*

Also common.

929.—Bubulcus coromandus, *Bodd.*

Numerous during the rains and cold season. D. knows two places in the Sholapoor Collectorate, where it breeds in the hot weather.

930.—Ardeola grayii, *Sykes.*

Common.

931.—Butorides javanica, *Horsfield.*

Very common in Satara wherever the river and canal banks are well wooded.

934.—Ardetta sinensis, *Gmel.*

Not common. D. got a single specimen in some reeds at Pundharpur in October.

937.—Nycticorax griseus, *Linn.*

Moderately common.

938.—Tantalus leucocephalus, *Gmelin.*

Sparingly observed, but D. has seen it constantly on the Pundharpur tank. He does not think it breeds in the Sholapoor Collectorate. It does so higher up the Bhima in the Ahmednugger district.

939.—Platalea leucorodia, *Linn.*

Common, and breeds in April and May.

940.—Anastomus oscitans, *Bodd.*

Not uncommon in the Bhima during the rains and cold season.

941.—Ibis melanocephala, *Lath.*

Not rare. D., having observed them this year on the Bhima from October until about the middle of July, concludes that they probably breed in the district.

942.—Inocotis papillosus, *Temm.*

Common, breeding in May and again during the last three months of the year. We do not think the same pairs breed twice.

943.—Falcinellus igneus, *S. G. Gmel.*

Towards the end of September last D. saw a single specimen at Pundharpur.

944.—Phœnicopterus roseus, *Pallas.*

Observed, but very rarely.

950.—Sarkidiornis melanonotus, *Pennant.*

Moderately common in the rains and cold weather.

951.—Nettapus coromandelianus, *Gmel.*

Moderately common during the rainy and cold seasons.

952.—Dendrocygna javanica, *Horsf.*

Somewhat rare in the more open parts of the country, but very common about the wooded districts in the rains and cold weather.

953.—Dendrocygna fulva, *Gm.*

W. is sure that he has observed this species at Nulwar and shot several in 1873.

954.—Casarca rutila, *Pallas.*

Tolerably common on all the rivers; staying with us until nearly the end of the hot weather.*

957.—Spatula clypeata, *Linn.*

Not uncommon during winter.

959.—Anus pœcilorhyncha, *Penn.*

Common, and having been observed at several places in the district during July and August, we assume that it breeds in these parts.

961.—Chaulelasmus streperus, *Linn.*

A very common winter visitant.

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* This if correct is curious, as they begin to breed about the Tsomorari, Tsokhar, the Upper Indus, &c., in May, and the young are in the water sometimes, by the middle of July.—A. O. H.

962.—Dafila acuta, *Linn.*

Observed, but in no great numbers.

963.—Mareca penelope, *Linn.*

Quite as common as the Gadwall.

964.—Querquedula crecca, *Linn.*

Commoner even than the Gadwall.

965.—Querquedula circia, *Linn.*

Very common.

968.—Fuligula ferina, *Linn.*

Tolerably common in the cold season according to W.'s experience, but D. calls it a rare visitant.

969.—Aythya nyroca, *Güld.*

Procured, but it is rare.

971.—Fulix cristata, *Lin.*

Fairly common.

975.—Podiceps minor, *Gmel.*

Common, and breeds in the rains.

983.—Gelochelidon anglica, *Montague.*

Rare, but a few remain with us all through the year according to D., but W. has observed them in the rains and winter only.

984.—Hydrochelidon hybrida, *Pall.*

The remarks in regard to the last species apply to this also.

987.—Sterna melanogastra, *Temm.*

Very common on all the rivers, where it also breeds.

995.—Rhynchops albicollis, *Swainson.*

Observed by D., who says it is not common.

1004.—Pelecanus philippensis, *Gmel.*

Very rare. D. observed a single specimen on the tank at Pundharpur, in September this year.

1006.—Phalacrocorax fuscicollis, *Steph.*

W. has identified this bird at Nulwar, and is almost positive that he has observed it at Sholapoor. D. has not seen it.

1007.—Phalacrocorax pygmæus, *Pall.*

Very common.

1008.—Plotus melanogaster, *Gmelin.*

Sparingly scattered all over the district, and believed to breed.

Our list numbers 255, whilst Mr. Fairbank's "List of Birds collected in the vicinity of Khandala, &c.," (*vide* Vol. IV., STRAY FEATHERS) numbers 314 species.

We have noted 44 species which are not included by Mr. Fairbank; these are as follows:—

9.—Falco peregrinator.
27.—Aquila mogilnik.
28.—Aquila clanga.
50.—Circus cyaneus.
98.—Cypselus melba.
120.—Merops persicus.
144.—Meniceros bicornis.
171.—Gecinus striolatus.
199.—Cuculus canorus.
216.—Rhopodytes viridirostris.
219.—Taccocua leschenaultii.
273.—Pericrocotus brevirostris.
539.—Cisticola cursitans.
591 *bis.*—Motacilla dukhunensis.
767.—Alauda gulgula.
769.—Galerida cristata.
842.—Glareola orientalis.
843.—Glareola lactea.
852.—Chettusia gregaria.
858.—Esacus recurvirostris.
870.—Gallinago sthenura.
877.—Numenius lineatus.
880.—Machetes pugnax.
882.—Tringa subarquata.
884.—Tringa minuta.
897.—Totanus calidris.
905.—Gallinula chloropus.
916.—Leptoptilus javanicus.
917.—Xenorhynchus asiaticus.
934.—Ardetta sinensis.
943.—Falcinellus igneus.
950.—Sarkidiornis melanonotus.
951.—Nettapus coromandelianus.
962.—Dafila acuta.
963.—Mareca penelope.
968.—Fuligula ferina.
969.—Aythya nyroca.
971.—Fulix cristata.
983.—Gelochelidon anglica.
984.—Hydrochelidon hybrida.
987.—Sterna melanogastra.
995.—Rhynchops albicollis.
1004.—Pelecanus philippensis.
1006.—Phalacrocorax fuscicollis.

Mr. Fairbank's list contains 103 species, which we have not observed, as follows:—

25.—Accipiter virgatus.
32.—Neopus malaiensis.
34.—Limnætus caligatus.
35.—Limnætus cirrhatus.
48.—Butastur teesa.
56 *bis.*—Milvus melanotis.
61.—Strix candida.
63.—Syrnium indrance.
74 *sept.*—Scops brucei.
91.—Ptyonoprogne rupestris.
104.—Dendrochelidon coronata.
113.—Caprimulgus mahrattensis.
114.—Caprimulgus monticolus.
115.—Harpactes fasciatus.
118.—Merops philippinus.
119.—Merops leschenaulti.
127.—Pelargopsis gurial.
140.—Dichoceros cavatus.
141.—Hydrocissa coronata.
145.—Tockus griseus.
153.—Loriculus vernalis.
164.—Yungipicus nanus.
179.—Micropternus gularis.
181.—Brachypternus puncticollis.
193 *bis.*—Megalæma inornata.
198.—Xantholæma malabarica.
202.—Cuculus sonnerati.
205.—Hierococcyx varius.
208.—Cacomantis passerinus.
222.—Taccocua affinis.
233.—Cinnyris minima.
238.—Dicæum erythrorhyncha.
239.—Dicæum concolor.
240.—Piprisoma agile.
253.—Dendrophila frontalis.
261.—Lanius cristatus.
267.—Hemipus picatus.
270.—Graucalus macei.
277.—Pericrocotus erythropygius.
280.—Buchanga longicaudata.
282.—Chaptia ænea.
285.—Dissemurus paradiseus.

290.—Hypothymis azurea.
309.—Cyornis pallipes.
310.—Muscicapula superciliaris.
354.—Geocichla cyanotis.
356.—Geocichla unicolor.
359.—Merula nigropileus.
398.—Dumetia albogularis.
399.—Pellorneum ruficeps.
433.—Malacocircus griseus,
435.—Malacocircus somervillei.
437.—Layardia subrufa.
446.—Hypsipetes ganeesa.
450.—Criniger ictericus.
464.—Phyllornis malabaricus.
469.—Irena puella.
471.—Oriolus indicus.
476.—Cercotrichas macrura.
488.—Saxicola opistholeuca.
491.—Saxicola isabellina.
492.—Saxicola deserti.
514.—Cyanecula suecica.
515.—Acrocephalus stentorius.
516.—Acrocephalus dumetorum.
538.—Prinia hodgsoni.
551.—Franklinia buchanani.
554.—Phylloscopus tristis.
558.—Phylloscopus lugubris.
559.—Phylloscopus nitidus.
560.—Phylloscopus viridanus.
561.—Phylloscopus affinis.
563.—Reguloides occipitalis.
565.—Reguloides proregulus.
582.—Sylvia affinis.
583.—Sylvia curruca.
591 *bis*.—Motacilla dukhunensis.
595.—Limonidromus indicus.
601.—Corydalla striolata.
602.—Agrodroma campestris.
603.—Agrodroma similis.
645.—Parus cæsius.
686.—Acridotheres fuscus.
701.—Munia striata.
704.—Estrelda amandava.
705.—Estrelda formosa.
716.—Emberiza huttoni.
724.—Melophus melanicterus.
738.—Carpodacus erythrinus.
761.—Calandrella brachydactyla.
768.—Alauda malabarica.
775.—Osmotreron malabarica.
786.—Palumbus elphinstonei.
792.—Turtur rupicolus.
844.—Squatarola helvetica.
885.—Tringa temminckii.
900.—Parra indica.
910.—Porzana bailloni.
928.—Demiegretta gularis.
933.—Ardetta cinnamomea.
960.—Anas caryophyllacea.
967.—Fuligula rufina.
985.—Seena aurantia.

In STRAY FEATHERS, Vol. V., p. 503, Captain Butler adds three species to Mr. Fairbank's list, *viz.*

133.—Ceyx tridactyla, *Pall.*

165.—Hemicircus cordatus, *Jerd.*

798.—Chalcophaps indicus, *Linn.*

Making, if *all the species have been correctly identified*, a total of 361.

A Lake in Oodeypore.

THE native state of Oodeypore, by far the most beautiful district in Rajpootana, boasts, amongst other attractions, a number of artificial lakes, which include some of the largest in the Empire.

The largest of all, the Deba Lake, covers, when full, probably over 100 square miles of country.

Of the second class of these lakes, Kunkrowlee, probably about half the size of the Deba, is the most celebrated.

All these lakes have been formed in the same way, *viz.*, by blocking up with huge dams the drainage outlets of tracts, elsewhere more or less entirely encompassed by low ranges of rocky hills.

At Kunkrowlee there were two such outlets, the more important of which, perhaps 500 yards in length, is blocked by a masonry and earthwork dam, 120 feet high in the centre, double this in width, and entirely faced on the lake side with endless symmetrical flights of steps, terraces and piers, adorned with beautiful many-pillared summer houses, ornamental gateways and the like, all constructed entirely of white marble, truly squared and laid, and, in the case of the summer houses and gateways, elaborately and beautifully carved.

At either end of the dam rise to a height of two or three hundred feet, dark rocky hillocks, sparsely besprinkled with dwarf trees and stunted bushes, and crowned with picturesque but ruined castles. Right and left, as far as the eye can reach, stretch the blue waters of the placid lake, while opposite, in the far distance, a thin ill-defined hazy line indicates the distant shore.

I spent a week last cold weather in a camp pitched upon this magnificent "bund," (as the dams are called by the Indians), and as we explored the avifauna of the lake pretty thoroughly—and as this represents fairly that of hundreds of other similar large and small sheets of water spread throughout the country—I propose to notice briefly every species that I met with there.

I do this the more readily that, so far as I know, no list of any kind has ever been given of any birds from Oodeypore. In fact, so inaccessible has this state remained until quite lately to all Europeans, except the particular Political Agent in charge, that I doubt whether a single specimen has ever been preserved within its limits until I visited it this year.

I marched through far too small a portion of the state, (only in fact the country lying between the Deysuri Pass of the Aravallis and Kunkrowlee, and this latter and Mhairwarrah) to attempt any general list of the Birds of the State, but the lake itself was fairly exhaustively dealt with.

The lake is a favourable example of one type of our Indian sheets of water, *viz.*, of that devoid of cover on the banks, and rushes, and the like near the margins ; and this type yields a much smaller number of species than those of the other type where the lake, embosomed in cover, is fringed and skirted and be-greened with belts and islets of rush and reed.

Here in many places the bare rock goes down steep into the water, and elsewhere the margin is hard bare earth or sand, here and there thinly veiled in short turf. It boasts an island or two it is true, but these are bare and rocky, homes only for Cormorants, though on one of them a single tree that has managed to struggle up to a respectable altitude, bears a huge nest of *Haliaetus leucoryphus*, which, when we visited the place early in March, contained two fully-fledged young ones, just able to fly.

No other bird of prey was seen on the lake, no Osprey, no Peregrine, no Spotted Eagle.

About the water *Hirundo rustica*, *H. fluvicola* and *Cypselus affinis* abounded. *Ceryle rudis* hovered over the water, ever and anon making sudden plunges, and *Halcyon smyrnensis* sat sulkily here and there, perched indeed on stakes planted in, or mud walls overlooking, the water, but clearly considering *this* no concern of his. *Motacilla maderaspatana*, *Budytes flava* and *cinereocapilla* trotted about at the waters' edge, to which Sparrows, a few Blue Pigeons, common Mynahs (*A. tristis*) and Starlings came down to drink. In one place, on some trees overhanging the water, was a flock of the Indian Rose-headed Paroquet (*P. purpureus*), and in the bushes around them I shot a pair of Gray's Sirkeer (*Taccocua sirkee, vide* S. F., V, 219) and saw several Indian Finch Larks (*Pyrrhulauda grisea.*)

A short distance inland, of course, there were many other species of land birds, but these were all I saw actually over the lake or by its margins.

Of shore birds there were but few. A single Snipe (*G. scolopacina*) was observed leisurely walking about the bare bank, in broad daylight, and poached without law, under the impression that he was something else, no one expecting to find a real Snipe in such a situation. *Tringa minuta*, *Lobivanellus indicus*, *Himantopus candidus*, *Actitis glareola*, *Machetes pugnax*, and a few *Limosa aegocephala* standing about in the shallow water were all we secured, and I believe all that were to be seen. Of waders, the Coromandel Shell-eater, numerous Herons, grey, white and purple, the Little Egret, and the Pond Heron were all that were to be found. There were no Rails, though on a patch some acres in extent of floating water weeds, the Indian Jacana (*Parra indica*) and the Water Pheasant (*H. chirurgus*) were abundant. We saw no Water Hens, but on the lake myriads of Coots brooded in dusky clouds, to rise with a surging roar like that of the waves on a shingly beach, at the first gun shot.

Indeed the whole lake, except towards its margin, was as remarkable for the enormous number of Water Fowl it harboured, as were its shores for the paucity of other birds.

There are *no* boats on the lake. The only one available being one specially brought out for our delectation by H. H. the Maharajah, who had come out to meet and receive us. The consequence was that the Water Fowl were absolutely unmolested except when they ventured within 50 yards of the shore, which, I think, few but Teal and Shovellers ever did.

Conspicuous, in enormous pinky-white legions, were the common Flamingo, of which there were many, many, thousands,

scattered about the further and shallower portions of the lake. Great numbers of the Bar-headed Goose, in parties of from 50 to 300, were to be seen in all directions, and often intermingled with these small families of the Black-backed Goose (*Sarkidiornis melanonotus*). No other Geese were met with; no Cotton or Whistling Teal, (*Nettapus coromandelianus*, *Dendrocygna javanica*) no Brahminy's (*Casarca rutila*) or Shell Drakes, but Shovellers (chiefly along the shores) Mallards, Grey Duck (*A. pœcilorhyncha*), Gadwall, Pintail, Widgeon, the White-eyed Duck (*Aythya nyroca*), and Common Teal in a profusion that would baffle description, and if described would exceed belief.

The Red-crested Pochard (*Fuligula rufina*) was to be met with continually, diving and swimming about in densely agglomerated bands, and most plentiful of all the Ducks, the Tufted Duck or Indian Golden-eye (*Fulix cristata*) rivalled in numbers even the swarming tribes of Coots.

Dab-chicks popped up and down around one whichever way we steered, and here and there the long white snake-like necks of the Crested Grebe caught the eye against a dense black background of Coots and Cormorants.

These latter, both the common kind (*P. carbo*) and the little one (*P. pygmœus*) abounded, many occupied in fishing lustily, but the majority, perhaps, sunning themselves with outspread wings, in company with the Silver-laced Snake-bird (*Plotus melanogaster*) on every rock, island or stake that the lake afforded.

As for Pelicans, I have only once or twice in my life seen such a display. There were only two species—one the silvery *crispus*, the other the huge, pinky birds that we in India have hitherto (as I now think erroneously) called *onocrotalus*, but of these there were simply *miles*. As far as I could judge, however—for they all kept mixed up in the same flocks—*crispus* was greatly in a minority.

The only Gulls were *L. ridibundus* and *brunneicephalus*, both plentiful to a degree, flying about everywhere or floating lazily along conspicuous in their delicate tints amongst the inky droves of Coots.

As for Terns, I cannot wholly account for it, but there were absolutely none. *S. melanogastra* and *seenâ* were doubtless away already to their breeding haunts, the sandy islands of some river, and the place was not suited to the Whiskered Tern (*H. hybrida*), but *S. caspius* might have been confidently expected to occur on such a vast sheet of water, and the Gull-billed Tern could hardly have left so early. Be the cause as it may, however, not one single true Tern did I see during the

whole week, of which I spent several hours daily on the lake.

I did, however, see several parties of a bird that I never should have expected to meet with, and this was the Scissor-Bill or Skimmer (*Rhynchops albicollis*). Of all the thousands of times that I have met with this, in Upper India, extremely common bird, never once till this time had I seen it anywhere but on the larger rivers, on whose churs it breeds, as every egg-collector here knows, in countless numbers.

I once doubted (Vol. IV., 32; V. 225) the occurrence of this species on the little lake at Aboo, some 80 or 90 miles west of Kankrowlee, but after seeing so many on this lake, I can quite understand that some of these, on their way to the estuary of the Loonee, where numbers are said to breed, may have paid a passing visit to the Aboo Lake which lies directly in their route.

A. O. H.

Wild Swans in Sind.

By W. T. Blanford.

Some Wild Swans were first seen in Sind in January last, in the Manchhar Lake, near Sehwan, by Mr. H. E. Watson. Subsequently on February 12th, 1878, Mr. Watson had the good fortune to find a small flock of five in another part of the Sehwan district, and to shoot three. He has sent me the skins of two, with a request that I would identify them. I may perhaps say at once that the skins are, I think, unquestionably adults of the Mute Swan, *Cygnus olor*, the same as the Tame Swans of English rivers and ponds, and that this is the first time that the adult bird has been obtained in India, or that any Swan, so far as I am aware, has been noticed in India so far to the southward.

Two previous notices of the occurrence of Wild Swans in India have been cited by Mr. Brooks (Proc. A. S. B., 1872, p. 63). The first was by Mr. Hodgson, who procured a specimen in the valley of Nepal. The skin was lost or not preserved, but a drawing was taken, and by means of this the species was identified with *C. ferus*, under which name the bird is quoted in both the British Museum Catalogues of Mr. Hodgson's collections. The identification was confirmed by Mr. Brooks, from an examination of the original drawing.

The second notice was by Mr. Hume in the *Ibis* for 1871, p. 412, where he described a pair of immature specimens obtained by Captain Unwin in the Upper Punjab, and proposed for them the name of *C. unwini*. It was, however, shown by the Editor that the specimens in question were probably the young of *C. olor*. This conclusion is strongly supported by the capture of adults of the same species in Sind, and by a specimen shot at Attock by Lieutenant Hill of the Rifle Brigade, on the 17th January 1878, and presented to the Indian Museum, Calcutta. This last-mentioned skin is not fully adult, being slightly greyish and with the tubercle on the bill undeveloped, but the species is unmistakeable.

Mr. Watson wrote to me the following account of the capture of these Swans: "I shot three Swans this morning. As far as I can judge they are identical with the English species" (that is the Tame Swan); "there were five on a small 'dhand' or tank, about half a mile or less in length by a quarter of a mile or less in breadth. I went to shoot ducks, but seeing these large white birds, I went after them and recognized them to be the same as those I had seen on the Manchhar. They let a boat get pretty close and I shot one. The other four flew round the tank a few times and then settled on it again. I went up in the boat and fired again, but without effect. They flew round and then settled again. The third time I shot another; the three remaining again flew round and settled, and the fourth time I fired I did not kill. Exactly the same thing happened, the birds flew round and settled close to me and I shot a third. The remaining two flew a little distance and settled, but I thought it would be a pity to kill them. I considered that there would be more than I could skin myself (for I have no one that can do it for me) so I began to shoot ducks, and then the two remaining swans flew by me, one on the right and one on the left, so that I could easily have knocked them over with small shots. However I spared them and came home with three."

Mr. Watson also sent me full details of coloration, measurements, and weight. From these and a few additional measurements on the dried skins I take the following account:—

The colour of all was pure-white with a slight buff or golden tint on the head; (this has disappeared from the dried skins, and may perhaps have been due to the feathers being stained). The bill was orange, varying in depth of color, and in one bird pale buff; the tip of the mandible, the lores, and a patch extending back from the nostril to the base of the tubercle, black; the tubercle was all black in one specimen, black with

the anterior portion orange in another; legs black. The following are measurements:—

	No. 1. feet inch	No. 2. feet inch	No. 3. feet inch.
Length from tip of bill to end of tail ...	4—10·5	5—2	5—0
Expanse	6—6	7—0	6—10
Closed wing	1—10	1—11	.....
Tail from vent	0—9·75	0—10·25	0—9·75
Do. from insertion of tail feathers ...	0—9	0—10	.....
Wings short of end of tail	0—6·25	0—8·75	0—6
Bill from gape	0—3·75	0—3·8	.....
Tarsus measured on inner side ...	0—3·8	0—4·2	.....
Weight	17½lbs.	19lbs.	17½lbs.

The occurrence of these birds so far to the southward must be very rare and exceptional. As previously noticed the fishermen of Sind, all of whom are fowlers by profession, and of course thoroughly acquainted with every aquatic bird in the country, had never seen swans before, and did not know what they were, so the fact of two different flocks being seen by one observer in the course of the same season is very remarkable. Mr. Watson is, I believe, so far as is known, the first sportsman who has ever killed an adult wild swan in India.

Further Notes on the Swans of India.

THE past winter has been an unusually severe one in Western India, and in Sindh especially* has resulted in the appearance of several very unexpected visitors, palæarctic forms not hitherto recorded from this province.

Amongst these are the Common Swan, (*C. olor*) in regard to which Mr. Blanford has written fully, and of which one fine adult specimen has been added to our Museum by the kindness of Mr. H. E. Watson, of the Sindh Commission.

Swans have long been known to be almost regular cold weather visitants to the extreme north-western portions of the Empire, *viz.*, to the Huzara and Peshawur districts, and a certain amount of information as to their occurrence elsewhere and at other seasons has accumulated, which it may be as well to put on record.

The first Swan, of which we have any record, is one shot in the valley of Nepal, in January 1829, and which, although the specimen was destroyed by insects, has been with some confidence assigned by Mr. Brooks and others to *C. ferus*. In regard to this Mr. Hodgson notes on a copy of his Catalogue which he sent me:—

"The valley of Nepal is sub-tropical, and of course no habitat for the Swan. The specimen I got was obtained in a winter

* See Mr. Murray's paper, page 108.

of very unusual severity. The bird must be a purely accidental straggler, as I could not learn that any like it had ever before been seen in Nepal."

In reply to queries of mine on the subject, Dr. Scully says: "I have made enquiries from a number of Nepalese, and I cannot find any one now remaining who ever remembers to have seen a wild Swan in the valley."

"In Asiatic Researches, XVIII., pt. II., 125, Hodgson gives *Cygnus* as one of the *Natatores* which usually pass over the valley, seldom alighting, and only for a few hours."

"At page 127 he adds: India, I fancy, is too hot for the taste of the *Natatores*, a great majority of which seem to affect Arctic regions, or at least high latitudes. I throw out the remark for canvass and enquiry, and for fear I should deceive any one by the display of the genus *Cygnus* at the head of my list, I must add that the wild Swan was never seen here (valley of Nepal) but once in the mid winter of 1828, when the apparition suggested a new version of the well-known hexameter

"*Rara avis in terris, albòque simillima cygno.*"

The next occurrence of Swans, of which I have a record, was near Peshawur, in 1857, when a small flock were seen, and one shot and placed in the Peshawur Museum, whence it was sent to me by Sir F. Pollock in, I think, 1867.

This Swan was shot by W. Mahomed Oomer Khan, who wrote to me about it as follows:—

"In the month of January 1857, I shot this Swan in the Peshawur District on the Shah Alum River, about a mile and a half on this side of the Cabul River. Neither before nor after have I seen other Swans, but a few years after I killed it, I heard from the shikaris of Hushtnugger (also in the Peshawur District) that they had recently seen five of these birds in the Agra village lake, in this same district, but had failed to shoot any."

The specimen had been so entirely ruined by exposure and insects that I could not be certain what species it belonged to, although from what remained of the bill and head I guessed it to be *C. olor*.

In 1871 Captain Unwin, of the 5th Goorkhas, sent me the skins of a pair of Swans with the following extract from his diary, under date 17th January 1871:—

"To-day, while Duck shooting on the Jubbee stream on the border of the Hazara and Rawul Pindee Districts, during a short halt for breakfast on the banks of the nullah, I was attracted by seeing two large white birds flying over the stream some 250 yards lower down. The Jubbee has here a wide stony bed with a small stream in the centre, forming occasional pools, in

one of which the birds seemed inclined to alight. Changing their intention, however, they came flying up, and passing me about 60 yards off; to my surprise and delight I recognised in them most undoubted wild Swans. Firing with loose shot at that distance was useless; so I watched in the hope that they would settle in some of the pools higher up the stream, and thereby afford a stalk, but they continued their slow, heavy flight until I lost them in the distance.

"Concluding that they would not stop till they reached the Indus some 20 miles off, I was returning to my breakfast, a sadder and a wiser man, when in taking a last look in their direction I saw them returning. I hastily got in the centre of the nullah in their line of flight, and as they rose slightly to avoid me, fired both barrels, No. 3 shot, at the leader. She (for it proved to be the female) staggered, but went on, slowly sinking, till she settled in a large pool, about 400 yards off, accompanied by her mate, which alighted close beside her.

"The pool, being commanded by a high bank, offered an easy stalk, and getting round into a favorable position, I found the Swans within 20 yards of me. A crowd of Gadwall (*C. streperus*) which was close by, took flight on seeing me, but the male Swan stuck nobly by his mate and paid dearly for his fidelity, and shortly I had the satisfaction of landing them both.

"The villagers who collected to see the birds gave the local name as "Peur" (pronounced with a nasal *n*), and told me that the birds came there occasionally once in every three or fours years."

I may here notice that in other parts of Upper India this name "*Peur*" is usually applied to Pelicans.

On the specimens sent by Captain Unwin I made the following remarks in the *Ibis*, 1871, 412:—

"Neither of these Swans is adult. The general colour of the lower surface is a dull white; of the upper whitey-brown; the crown and occiput wood-brown; the greater portion of the wing, the scapulars, and rump are wood, or sandy brown. There is nowhere any trace of a "sooty grey." The brown is essentially a buffy or sandy brown, though here and there, as in the feathers of the base of the neck, a faint greyish shade is intermingled.

"These birds are, therefore, clearly not the Polish Swan, which is white at all ages. The bill exhibits no trace of a tubercle; the feathers of the forehead are prolonged to a point, only very slightly truncated. The colouring of the soft parts was carefully noted in the fresh specimen by Captain Unwin, and even in the dried specimen is clearly distinguishable. If from each side of the frontal tongue of feathers, about half an inch

from its point, a slightly curving line be drawn to a point on the edge of the upper mandible about a quarter of an inch from the gape, the whole of the space enclosed by such line between it and the eye is perfectly black. At the extreme point of the frontal feathers again is a black band, about a quarter of an inch wide, which extends right and left over the whole nareal space. The nail is black; the rest of the bill was light grey. The legs and feet, I may add, were greyish black. Both male and female, though differing somewhat in size, are precisely similar, both as regards plumage and coloration of the bill. The bill is slightly spatulate. In the male the upper mandible is 1·1 wide opposite the nostrils, and 1·23 wide near the tip. The following are dimensions of both birds measured in the flesh :—

Male.—Length, 55·5; expanse, 84·37; wing, 23·12; tail from vent, 8·5; bill at front, straight from termination of frontal plumes to tip, 3·5; from anterior angle of eye, 5·15; from gape, 4; tarsus, 4·05; mid toe to root of claw, 5; hind toe, 1; foot, greatest length, 8·37; breadth, 6·62. Weight, 15 lbs.

Female.—Length, 53·12; expanse, 82·37; wing, 21·38; bill at front from frontal plumes straight to tip, 3·55; from anterior angle of eye, 4·75; from gape, 3·9; tarsus, 3·8; mid toe to root of claw, 4·8; hind toe, 0·7; foot greatest length, 7·5; greatest width, 6·5. Weight, 13 lbs. In both the irides were dark brown.

I could not at the time satisfactorily identify these birds, and concluded that they were either the young of *olor* or *buccinator*, or of some undescribed species. If the latter *should prove* to be the case, I suggested for them the name of *unwini*, but I did *not unconditionally*, as Mr. Blanford gives us to understand, propose for them this name.

The Editor of the *Ibis* suggested that they were probably the young of *olor*, in which identification, having now compared them with an adult, I can entirely concur.

In the cold weather of 1871-72, Dr. Stoliczka, when in Cutch, thought he saw Swans there. He says, J. A. S. B., 1872, 229: "While crossing the Rann from Kachh to Pachain early in November (1871), I noticed several Swans, but at too great a distance for it to be possible to form an idea as to the species the birds belonged to."

Until recently I had always considered, (S. F., IV., 33) that Stoliczka, being very short-sighted, had mistaken Pelicans (the white *P. crispus* abounds there) for Swans, but the recent occurrence of Swans in Sindh renders it not improbable that Stoliczka was right after all.

Between 1872 and 1876 I received notices of Swans being killed on three occasions, on the Swat and Cabul rivers, in the Peshawur District, and in Kohat near one of our salt mines, in November, January, and February. In one case a pair, in another three, and in the last case five were seen, one being shot in each case, but none preserved.

In 1877 Captain Butler learnt from some of the telegraph officers in the Persian Gulf that Swans had been occasionally seen about the head of that gulf, and the mouths of the Euphrates.

I may mention that Major St. John obtained a single immature specimen of a Swan at Teheran, which has been with some hesitation referred to *C. ferus*. During the winter he informs me that Swans abound on the southern shores of the Caspian, especially in the huge Murdab (or dead water) back water between Enzeli and Resht. According to Pallas, Zoogr. Ross. As., II., 210—217, *Cygnus ferus* (which he calls *olor*, and under which he apparently includes *bewicki*) is extremely abundant in the Caspian wintering in the Southern portion, while *olor* (which he calls *sibilus*) is, it may be gathered from his remarks, less numerous in the localities he visited, (he only touched the northern shores of the Caspian) and affects more temperate climes than *ferus*.

From Severstzoff we know that both *Cygnus ferus* and *C. olor* occur and breed in parts of Eastern Turkestan, the Issik-kul, and country south of Lake Balkash; and he also mentions a *Cygnus altumi*, of Homeyer, as occurring there—a species of which I never previously heard, and which I have not had time to trace.

Dr. Scully, it will be remembered (S. F., IV., 179,) saw captive specimens of *C. olor* near Kashghar itself, and was informed that it was extremely plentiful further north at Aksu, and further east at Lob.

Prjevalsky mentions both *C. ferus* and *olor* as observed as migrant, (and as possibly breeding in some localities) in S. E. Mongolia, Kokonor, and Dalainor, &c., and he also refers to *C. bewickii* as seen in company with three others.

Both Swinhoe and David and Oustalet give *Cygnus ferus* and *Cygnus bewicki* as occurring in China, at any rate as far south as Shanghai, together with another smaller Swan, *C. davidi* of Swinhoe, which Taczanowski, according to David and Oustalet,* is most unaccountably inclined to unite with *C. sibilus*, Pallas, which is quite clearly *C. olor*.

* Père David and his confrère remark that Pallas has indicated a Swan "en termes *fort vagues*, sous le nom de *Cygnus sibilus*." I must dissent from this. I think Pallas in his Zoogr. Ross. As., p. 216, about as explicitly indicates *olor* by his *sibilus* by contrasting it with *ferus* (his *olor*, (a) *major*) as it was possible for any one to do.

Throughout the whole tract therefore north, north-east, and north-west of us from Teheran to Sanghai there are plenty of Swans, and it is by on means surprising that in severe winters some of these should extend their migrations to the more northern portions of this empire.

During this past cold season Swans have been numerous in the far North West. One was killed, as mentioned by Mr. Blanford, near Attock in January, and I heard of two others being killed in the Peshawur district in February, and of many others being seen.

In February, too, Mr. Watson killed the Swans referred to by Mr. Blanford in Sindh.

But the most remarkable instances have yet to be noticed.

On the 3rd of June, Major Waterfield telegraphed to me that a Swan had just been shot.

Later he wrote: "The Swan was killed on the Ojca Jheel on the 3rd of June; there were a pair, but the other flew away. The bird that I have had preserved for you measured exactly 5 feet in length and 7 feet 5 inches in expanse. The feet and legs were black; the upper mandible is reddish white; its edge, lores, and lower mandible black."

A few days later Mr. D. B. Sinclair wrote to say that he had killed another Swan, a male, on the 1st of June at the Gulabad Jheel, 12 miles north-east of Peshawur, and on the 7th July he wrote to say that there was still at least one Swan left on this same jheel.

The specimen sent by Major Waterfield proved to be a nearly mature *C. olor*, but Mr. Sinclair's bird, unfortunately imperfectly preserved, decayed so rapidly in the hot weather that then prevailed, (the temperature was over 100° Far. in the shade at 10 A. M., in Peshawur at the time) that it shortly grew a mass "to make men tremble who never weep," and though, from what was said, I believe it also to have been *olor*, I cannot be certain.

What could keep a number of Swans down in the middle of June, in one of the hottest places in India, I cannot pretend to say.

As far as I can gather, the only Swans that we are likely to meet with in India are *C. ferus*, *C. olor*, and *C. bewicki*, and it may be as well to explain how those may be discriminated.

In the first place, *C. olor* at all ages has the tail more or less wedge-shaped, pointed, and comparatively long, while the other two have the tail rounded and short, so that *olor* may be at once distinguished from the other two. In the adults, of course, *olor* is further distinguished by the large black fleshy tubercle springing from the forehead and descending on the basal portion

of the culmen which is entirely wanting in the other two species, but this tubercle is equally entirely wanting in the young of *olor*, and as it is these for the most part that we meet with in India, this point need not be further insisted on here.

The dimensions of this species, already given by Mr. Blanford and myself, will, I think, suffice for all practical purposes. To my description of the young, reproduced above from the *Ibis*, I have only to add that at a later stage those parts of the bill which I described as pale grey become dull yellow, and the feet black. In the perfect adult the plumage is very pure white, at times with a creamy or buffy tinge on head and back of upper neck, and the bill is as described by Mr. Blanford.

C. ferus and *bewicki* both have short *rounded* (not pointed or wedge-shaped) tails, and both have the bare space in front of the eyes yellow, and not black as in *olor*. They differ, *inter se*, amongst other things in the much superior size of *ferus*; in the color of the bills, and in *ferus* having the frontal feathers prolonged into an angle, while in *bewicki* they terminate in a semicircle.

The following are dimensions recorded of an adult male and adult female of *C. ferus* :—

Male.—Length, 60; expanse, 95; wing, 25·75; tail, 7·5; bill along culmen, including bare space on forehead, 4·25; from tip to eye, 5·16; tarsus, 4·16.

Female.—Length, 52; expanse, 85; wing, 23·5; tail, 7·5; bill as above, 4·5; to eye, 4·84; tarsus, 4·0.

The bare space on the forehead and in front of the eyes and the basal portion of the bill is yellowish; the nail and the tip of the bill is black, the black extending upwards as a point along the culmen to within perhaps 1·5 of the forehead, while the yellow extends forward along the sides of the upper mandible to within perhaps the same distance of the point, the two colors meeting in a slanting line on either side of the bill. Part of the base of the lower mandible and the space between the rami yellow, the rest black; the iris is brown; the feet and claws black.

The following are dimensions, &c., of a male of *C. bewicki* :—

Length, 45; expanse, 74; wing, 20·5; tarsus, 5·5; bill as above, 3·5; to eye, 4·41; tarsus, 3·75.

The females are smaller, but some males are larger than the dimensions above given, and measure nearly, if not quite, 50 in length.

In the adults in this species the greater part of the bill is black, but the bare space on the forehead and in front of the eyes is bright yellow, as is also the basal portion of the upper mandible, the color extending forwards in a curve, but not reaching the nostrils; the feet black.

In both these species the plumage of the adult is pure white, that of the head and neck being often tinged with reddish yellow. In both, the young birds have the plumage pale bluish grey; the bill dusky at the tip, and livid fleshy or reddish towards the base, and on the partially bare skin in front of the eye; and the feet reddish grey.

Much more might be said as to minor differences existing between these three species, but my object is merely to enable observers in India to discriminate them, and not to write a monographic notice of them.

A. O. H.

Further Additions to the Sindh Avifauna.

By J. A. Murray.

Having made a collecting trip a little beyond Sehwan, I propose to give a few particulars of the result, showing some additions to the Avifauna of Sindh as recorded in the Editor's lists, Vol. I., p. 148, and Vol. V., p. 328, of Stray Feathers.

We were a party of three, and left Kurrachee by the evening train of the 15th November last, arriving at Jempeer, a station on the line, at about 2 A.M. on the following morning. Here we were delayed till 4 A.M., owing to our camels not being in readiness, which completely upset our plans for going some seventeen miles north of the station across a range of hills. This it was impossible to do owing to the late start, and as day broke we got to the first piece of ground covered with vegetation other than the *Euphorbia*, and this was chiefly composed of *Grewia asiatica*, *Capparis aphylla* and *Leptadenia jacquemontiana*, with here and there interspersed some tall Acacia trees on which were seated small companies of the large Tawny Vulture *Gyps fulvescens*, and the White-backed species *G. bengalensis*.

Partridges and Quails were numerous and were heard for miles, and Hares in plenty were seen skedadling from bush to bush. Of the *Laniidæ* there were *L. vittatus*, *erythronotus* and *lathora* busily occupied making their morning repast, while the King Crows, (*Buchanga atra*,) were flitting from bush to bush making a not unpleasant cry; this with the Larks, *Galerida cristata* and *Callendrella brachydactyla*, whose songs filled the morning air, were the first observed; *Lanius arenarius* and *Malacocircus terricolor* being later on observable as busy as the others, after a night's fast.

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Getting across the bed of stream we came upon a Fox, (*Vulpes leucopus*,) which was soon brought to bag, and tied on at the back of the camel, but not without strong protest by the driver, who seemed to think it would defile his ship of the desert and himself.

The sun having now risen pretty high, and finding we had not made much progress, a suggestion to give up our first programme for Houbara shooting was discussed, and carried by a majority, including Camel-driver and Shikaree, and so we made a detour for the most likely ground, reaching it a little too early, the sun not being sufficiently hot for the Bustards to take shelter under the bushes.

A halt being called under a rather scantily-clothed Acacia, breakfast was spread and enjoyed after a morning ride. We remounted at exactly 10 o'clock, and skirting a small range of hills came upon a piece of ground profusely clothed with *Grewia* bushes, and here began real work. Separating ourselves, as was necessary, we entirely cut off any chance of escape if the birds were not anxious to get shot at; and as we narrowed the circle found ourselves in luck by the sight of five very good-sized birds. Four of these were bagged, among them two beautiful Cock birds. We hunted up the fifth, which escaped J. G.'s gun, but failed to get a sight of it, notwithstanding our climbing up and down several ragged hills.

Houbara were not abundant this season, and, strange to say, the *Grewia* berries, which they chiefly live upon, were not even ripe on their first arrival. Florican (I mean the Bastard Florican, *Sypheotides auritus*) have not at all put in an appearance this year, owing, probably, to no rain having fallen. Natives assert that as sure as the Scarlet Mite (*Trombidium tinctorium*) makes its appearance after a fall of rain in November, the Bastard Florican is as certain to follow. I cannot vouch for the last, but the Scarlet Mite has always been seen after a shower in the winter months.

Finding no more traces of Houbara, we made for a piece of water about two miles west. Here we found large shady trees with several nests of *Gyps bengalensis*, but no eggs in them.

On the water we got some Teal and *Podiceps minor*, and by one o'clock a small collection of the smaller birds. They were all species already recorded as occurring in Sindh. Having skinned some of the more valuable examples we set off on our return journey, arriving at the station at 9-30 P.M., the entire bag consisting of *Gyps bengalensis*, *Falco juggur*, *Micronisus badius*, *Gyps fulvescens*, *Buteo ferox*, *Yunx torquilla*, *Querquedula crecca*, *Pipastes arboreus*, *P. maculatus*, an Adjutant, out of whose craw we got half a dozen examples of a Lizard, *Uromastix hardwickii*,

Podiceps minor, Black and Grey Partridges and Hares and *Vulpes leucopus*.

On the morning of the 17th we strolled a few miles towards a temple situate at the back of the station, and were very pleasantly surprised at the marked change of aspect to that of the day previous. Here were seen herds of goat and sheep browsing on good pasture by the sides of the marshes formed by a natural flow of water from the limestone rocks, the sources being small fissures at the head of the hill in about thirteen different places. Two of these are caught in a cistern built near a temple situate on the hill for the use of devotees, whose only shelter is a well-shaded Banian, (*Ficus religiosa*). Strolling a mile or so in this piece of marsh, we got *Anastomus oscitans* and *Tantalus leucocephalus*, neither of which seem to have been as yet recorded from Sindh.* Other birds got on this morning were *Pericrocotus peregrinus, Silvia jerdoni, Lobivanellus indicus*, and *Athene brama*. We returned by 9, breakfasted, and left by train for Kotree, where, having arrived at 4 P.M., a box was packed with the collection made during the three days since our departure from Kurrachee, and left for despatch to the Museum.

On the morning of the 19th we left Kotree for Sehwan by the Indus Valley Material train, making the journey in eleven hours. Any one who travels on the Sind Line of Railway cannot but be impressed with the monotonous aspect of the dry barren country through which it passes; one continuous line of desolate sterility, but the Indus Valley Line, running as it does along the river banks, would compensate the through traveller; for, as he moves onwards, leaving Kotree behind, the eye is refreshed with the verdant clothing of the river banks on one side with the river now and again appearing in the distance. On the other side pools of water by the side of the line, over which the Snippets fly as the train passes, patches of sprouting crops at the base of low hills, and the call of the Partridges, Quail, and Grouse would tempt the traveller with his gun, so long as he would only allow the range of his vision within two miles. Far, far in the distance the huge gray masses which appear unclothed with vegetation of any kind would soon dispel the illusive dream of a fine day among the Grouse, as even in November the heat among these hills is very great. By far the grandest scenery, and the most striking, is presented from the Buggatoria Hill, about seven miles from Sehwan, a huge limestone rock abutting on the Indus. As we approach it, a great barrier is presented, till the train, sweeping with a grand curve, brings to view a gorge cut in the

* Mr. S. Doig has reported both, the latter as breeding there, from the Eastern Narra.

rock not completed, outside of which, in order to carry the materials of the line through, a diversion has been carried, showing below the Government road, a village, and in full view a most grand and beautiful landscape made up by a fine stretch of the river, in all its windings, studded with numerous islets all covered with the evergreen tamarisk, the more distant ones presenting quite a lawn-like appearance. This scene, with the sun nearly set, and lighting up the town of Sehwan in the distance, formed a very enjoyable prospect, and was the talk of more than one stranger who, like myself, travelled for the first time along this portion of the line.

Sehwan was reached after sun down. We remained for the night at the station, dining, entirely upon preserved provisions, (thanks to the ingenuity of man) in less than an hour after a refreshing cold ablution. The cravings of the inner man satisfied, we set about making ourselves comfortable for the night, and were soon in the arms of Morpheus dreaming of happy events for the following day.

A tolerable night's rest in a room inhabited by a large family of *Arachnidæ* and overrun with *Formica*, large black soldiers, with heads double the size of their bodies, left us recruited for a forward journey after "*Chota Hazree.*"

Riding across a sandy plain covered with *Glinus lotoides*, *Capparis appylla*, *Ærua bovii*, *Æ. lonata*, and the ever recurring *Salvadora*, we came on to the banks of the Aral and encamped for a few hours under the shade of a grove of trees made up of *Acacia sirissa*, *Ficus religiosa*, and the Neem, till arrangements were made for a stay of a few days at Sehwan. This completed, chiefly by the good offices of the Mookhtyarkar* of the station, we strolled during the afternoon along a well-kept shady road leading to the Sehwan garden, enlisting on the way the services of two beaters. We succeeded in bagging a few Black Partridges, two good specimens of *Brachypternus dilutus*, and a novelty to the Ornis of Sindh in the shape of *Malacocercus malcolmi*.

On the following morning, 21st, we took a circuitous ramble outside of Sehwan, and in the course of a few hours made a very varied collection of birds—among them *Oriolus kundoo* and *Picus mahrattensis*. We *did* Sehwan in four days, adding to our collection 80 skins in all, comprising *Aquila fulvescens*, *Falco babylonicus*, *Athene brama*, *B. dilutus*, *Picus scindianus* et *mahrattensis*, *Chatarrhœa caudata*, *M. malcolmi*, *Pycnonotus pusillus*, *Emberiza striolata*, *huttoni*,

* The native local Revenue officer, equivalent to Tehsildar in Upper India, Mamlutdar in Bombay, &c.—A. O. H.

and *stewarti*, *Saxicola picata*, *monacha*, *deserti*, *Budytes flava*, *Pyrrhulauda grisea*, *Bucanetes githagineus*, and a number of Waders, which are all recorded from Sindh, and which would occupy too much space to name.

On the evening of the 26th we started by boat for the Manchar, getting poled along through the shallow canal which feeds the lake. As nothing except a few Waders were observed, we settled down quietly, comfortably taking to our beds at 9 P.M. and waking up at 5 A.M. at the head of the lake to see some scores of Cormorants, quite happy in their native element, and as might be expected the Brahminy Kite, (*Haliastur indus*,) stooping on fish, and in its wake *Milvus govinda* making vain efforts to secure a like prey. Going through the lake up to Trainhee, we bagged a number of Water Hens and Coots, and a magnificent specimen of *Phœnicopterus roseus*. We did not come upon any Ducks, owing, as the boatman said, to the track we were in being much frequented by fishermen and others at all times, but as we neared Trainhee they were innumerable, and we bagged several. The whole lake literally swarms with Water Fowl of all descriptions. We reached Trainhee at about 9 A.M., after four hours poling from the head of the lake. Stooping over the boat we collected a quantity of fresh water *Cerites*, and on the mud some odd valves of *Unio margaritifera*, getting perfect ones the following day, when we obtained a large variety of Ducks and Geese, but nothing new. Our next hunt was among the hills, where we got *Pterocles arenarius*, *exustus*, also a novelty in the shape of *Melophus melanicterus*. *Pyrrhulauda melanauchen* and *grisea* were extremely common; also the Red Wax Bill, *Munia malabarica*, and *Pastor roseus*, from a flock of which I got *Temenuchus pagodarum*. The Crimson-Breasted Barbet, (*X. hæmacephala*) we also got here. Returning, we made sad havoc among the smaller birds which we did not care to collect at Sehwan, namely *Saxicola albonigra*, *Caprimulgus asiaticus*, *Pratincola indica*, and *caprata*, *Thamnobia cambaiensis*, the Blue-throat *Cyanecula suecica*, *Ædon familiaris*, *Saxicola isabellina*, and *Saxicola kingi*, and a great number of Waders.

We only remained five days on the Manchar, and our collection was greatly increased, so much so that we could find no box room for the preserved skins. On our return trip to Sehwan we got a number of Jacanas, a Pelican, *H. albicilla and eggs*, *Circus æruginosus*, *Buteo ferox*, *Alcedo ispida*, *Halcyon smyrnensis* and *Agrodroma campestris*—altogether the collection numbering in preserved skins, from 15th November to 13th December, 270 skins.

We began our return journey from Sehwan by camel to as far as Lakki, after giving instructions in skinning and plenty of preservative to a native, the results of which will be noted

hereafter. At Lakki we were very successful among the hills, and in the small gardens close by the station we got a single specimen of *Tchitrea paradisi*, also *Hirundo erythropygia* and *Pericrocotus brevirostris*. At Buggatoria, *Graucalus macei*.

We returned to Kurrachee on 13th December 1877, and the novelties or additions to the said list including those procured in September and October, and the collections made by native collectors at Sehwan and Dowlutpoor are as follows:—

12.—Falco babylonicus,* *Gurney*. November. Sehwan.
74.—Ephialtes pennatus, *Hodgs*. Kurrachee.
85.—Hirundo erythropygia, *Sykes*. F. Pultem. November.
121.—Merops apiaster, *Lin*. Jeempeer. September and October.
199.—Cuculus canorus, *Lin*. Kurrachee. August and November.
261.—Lanius cristatus,* *Lin*. Jeempeer and Kotree. September and October.
259*bis*.—Lanius auriculatus, *P. L. S. Müll*. Dowlutpoor. November.
270.—Graucalus macei, *Less*. Buggatoria. December.
273.—Pericrocotus brevirostris, *Vig*. Lakki. December.
288.—Muscipeta paradisi, *Lin*. Lakki. December.
436.—Malacocercus malcolmi, *Sykes*. Sehwan. November.
470.—Oriolus kundoo, *Sykes*. Sehwan. November.
490*ter*.—Saxicola leucomela, *Pallas*. Dowlutpur. November.
495.—Ruticilla mesoleuca, *Ehr*. Sehwan. November.
553*bis*.—Hypolais caligata, *Licht*. Jeempeer. November.
589.—Motacilla maderaspatensis, *Gm*. Sehwan. November.
660*bis*.—Corvus umbrinus, *Hedenb. Sund*. Jacobabad. February.
687.—Temenuchus pagodarum, *Gm*. Trainhee. December.
720*quat*.—Emberiza miliaria, *Linn*. Dowlutpoor. December.
724.—Melophus melanicterus, *Gm*. Trainhee. December.
751*ter*.—Linaria cannabina, *Lin*. Dowlutpoor. November.
772.—Crocopus chlorigaster, *Bly*. Jacobabad. February.
938.—Tantalus leucocephalus, *Gm*. Jeempeer. September.
940.—Anastomus oscitans, *Bodd*. Jeempeer. September.

Amongst these are several European birds which have never before been known to occur in India, and I should like to have an opinion as to the cause of their migration so far as Sindh. Are they found in Beloochistan or Persia? If so, it is not so strange that they should occur here too.

The winter last season was very severe, and perhaps like *Cygnus olor*, obtained by Mr. Watson a few weeks after my leaving the Manchar; these strangers too were driven by stress of weather within the limits of the province.

* Already sent by Captain Butler, who has shot three or four, but not yet published.—Ed.

It may be well to explain distinctly that all the novelties above mentioned, except *Crocopus chlorigaster* (which was obtained near Jacobabad by my native collector when out with the General on tour to Mitra), and those from Dowlutpoor (sent me with about 80 other skins by a native to whom I gave lessons before leaving Sehwan), were procured by myself; and although these exceptions include the five most important of the novelties (*L. auriculatus*, *S. leucomela*, *L. cannibina*, *E. miliaria*, *R. mesoleuca*), and were *not* collected by *myself*, I have every reason to be satisfied that they were really procured at Dowlutpoor, whence I received them.

I take this opportunity of noting in regard to Captain Butler's and the Editor's remarks (V., 327, 330) that I asserted that *Irena puella* was procured near Sukkur, for the simple reason that a skin of it was sent down to me along with other skins from that place. Whether it was an escaped caged bird or not, I cannot of course pretend to say. I had nothing to do with collecting the specimen. I only told the tale as it was told to me.

NOTE BY THE EDITOR.

AT Mr. Murray's request I have corrected the nomenclature throughout, and identified the species referred to in the preceding very important paper.

Not only does this paper add the very large number of twenty-four species to the Sindh list, but it adds six species to the Avifauna of India, and extends to a very considerable degree the previously known area of distribution of these.

None of these six species are included by Jerdon, and none of them have been as yet described in this periodical. These six are :—

497*ter*.—Ruticilla mesoleuca, *Ehrenb.*

This species, originally discovered near Jeddah, has subsequently been observed in Greece and Turkey, and appears to have its head-quarters in the western portions of Asia Minor. A straggler has also been obtained at Heligoland!

This species also occurs at Bushire. Major St. John obtained it there. Not knowing the species he took it for *R. hodgsoni*, which it closely resembles, and told Mr. Blanford that he had obtained this latter species there. Mr. Blanford not unreasonably pooh-poohed this surmise, and refused to record it in the account prepared by him, with Major St. John's assistance, of

the birds of Persia. Directly I showed St. John this specimen, without mentioning name or anything about it, he at once said, "This is the bird I got at Bushire that Blanford would not believe about."

The occurrence of this species at Dowlutpore near Sehwan 17° further east than Bushire, along with four other species, *Lanius auriculatus*, *Saxicola leucomela*, *Emberiza miliaria*, and *Linaria cannabina*, none of which have hitherto been observed anything nearly so far east, must naturally awaken suspicions that some mistake has occurred.

I have examined the specimen of *mesoleuca* carefully, and it is certainly not one prepared in Europe, and the same may be said of all the other specimens from Dowlutpore. They are obviously prepared by a comparatively untrained native skinner, and it would seem impossible that Mr. Murray's man, out in the jungles at Dowlutpore, could have got the specimens in any possible way, except by himself shooting and skinning them; and as he has not the slightest knowledge of ornithology, and barely knows a Crow from a Pigeon, there would seem no valid reason for doubting the occurrence of this and the other species, startling and unexpected as this is.

But is it quite certain that these specimens were amongst the Dowlutpore birds? Mr. Murray thinks so, and he may be right; but not one of these birds had a ticket, and I have ascertained that about the time he got the birds from Dowlutpore, he also had to examine a collection of birds from Bushire. And all these five birds occur at Bushire; so that it appears to me that with a lot of birds lying about without tickets, it is not impossible that these five being Bushire ones got mixed with the Dowlutpore ones, and therefore, while admitting these species provisionally to places in our list, I must warn my readers that I think their occurrence within our limits requires further confirmation.

Mr. Murray sent me this bird as *R. phœnicura*, from which it differs most conspicuously by its huge white wing spot; but Captain Butler, who is far better up in birds, pronounced it, like Major St. John, to be apparently *R. hodgsoni*, which indeed it much resembles.

As regards its differences from *R. phœnicura*, Mr. Dresser remarks:—

"The *Adult Male* differs from the male of *R. phœnicura* in having the upper parts, more especially the head, much darker; the white on the forehead more extended; the black on the throat more intense; and the entire under parts below the throat are rich orange-red—the centre of the abdomen alone being marked with white; the wings are darker and greyer,

while the secondaries have almost the whole of the outer web, from the base nearly to the tip, pure white, forming a very conspicuous white alar patch; bill and legs, black; iris, brown. Total length, about 6 inches; culmen, 0·5; wing, 3·1; tail, 2·45; tarsus, 0·82.

"The *Adult Female* differs from the female of *Ruticilla phœnicura* in having the upper parts greyer; the forehead and sides of the head dirty greyish white, the latter tinged with brownish ash; underparts much greyer and more sooty than in *R. phœnicura;* the breast only tinged with dull greyish orange.

"*Obs.*—There is, comparatively speaking, but little variation in the specimens I have examined, but the amount of white on the wing in the male varies somewhat, and in some specimens the back is very dark, and marked with black."

To *hodgsoni* it bears a much closer resemblence. It differs in having a broader and purer white frontal band than *hodgsoni*, in having rather more of the rump orange ferruginous, in having more white on the wing, the white in *hodgsoni* being confined to the tertiaries and hinder secondaries, while in *mesoleuca* it extends on to several of the primaries. The black of the throat descends much further on to the breast in *hodgsoni*, and the middle of the abdomen in *mesoleuca* is mottled with pure white. So much for the male. I have no female *mesoleuca*, but to judge from the plate of this, the female of *hodgsoni* is a darker brown above, has no pale frontal band, and is less albescent on the abdomen.

The female *Ruticilla hodgsoni* has no albescent margins to the primaries as the female of *mesoleuca appears to have.*

The following are the dimensions and description of Mr. Murray's specimen, a male:—

Length, 6·3; wing, 3·3; tail, 2·8; tarsus, 0·78; bill from forehead, 0·6.

A narrow frontal band, the lores, chin, throat, cheeks, front, and frontal half of sides of neck, black; breast, abdomen, lower tail-coverts, axillaries and greater part of wing-lining, orange ferruginous; the middle of the abdomen mottled with pure white and lower tail-coverts, paler; lower surface of the quills, delicate satin grey; a very broad white frontal band, extending backwards to the eye above the narrow black frontal band; crown, occiput, nape and entire mantle, slaty grey; rump, upper tail-coverts and tail, except two central feathers, which are more or less brown, orange ferruginous; wings, brown; tertiaries and secondaries, broadly, and more or less of the hinder primaries, narrowly, margined on their outer webs, in the case of the two former for nearly their entire length, with pure white.

259*bis*.—Lanius auriculatus, *P. L. S., Müll.*

This species, well figured by Buffon, P. E., pl. IX., fig. 2, and the male, at any rate, correctly described by Brisson, Orn. II., 147, as *Lanius rufus*, (a name unfortunately not allowed to stand by the British Association Rules), was confounded by Linnæus in his 12th edition with *Lanius collurio*, so that the first name available for this comparatively common European Shrike is that given by Müller in his Supplement to the Syst. Nat. Later Gmelin recognized to a certain extent the distinctness of this species, but still only admitted it as a variety.

When Messrs. Sharpe and Dresser published their article on this species in March 1871, its range was only known to them as extending to the Black Sea, but De Filippi found it in Northern Persia, and Major St. John and Mr. Blanford obtained it in hilly country at elevations of from 4,750 to 7,000 feet from June to August, at and a little to the east of Shiraz.

Its present occurrence in Western Sindh is the more remarkable, that I have not yet received it from anywhere in Beloochistan, not even from the Highlands between Khelat and Quetta, where it would have *primâ facie* have appeared more likely to occur than in the comparatively low parts of Western Sindh, whence it has now been sent.

The following are the dimensions taken from Mr. Murray's specimen, a male :—

Length, 7·75 inches ; wing, 4·0 ; tail, 3·6 ; tarsus, 0·93 ; bill from frontal bone straight to tip, 0·78.

The chin, throat, breast, and entire lower parts, a patch over the nostrils, and in front of the eye on either side, a spot above and behind each eye, the scapulars, the lower rump and upper tail-coverts, a broad band at the base of the primaries, and a narrow tipping to the tertiaries and later secondaries, the outer webs of the external tail feathers, and the bases and tips of all the tail feathers, white ; the white tipping of the central feathers almost obsolete, and traces of white tippings to the greater wing-coverts ; the middle of the back ashy grey ; a broad band on the forehead, extending on either side across the eyes and ear-coverts, and down the sides of the neck to the interscapulary region, this latter and the whole of the wings and tail, where these are not white, black ; crown, occiput and nape rich chestnut ; the lower parts, that is to say breast and abdomen, have a very slight fulvous tinge ; the axillaries are mingled grey and white, and the wing-lining (except the tips of the greater primary lower coverts which are dusky) and the basal portions of the primaries, are white.

I have compared this specimen with one from Europe ; they are identical. I have no female by me, but Macgillivray thus describes her :—

"*Female.*—The female has the upper part of the head and the hind neck dull brownish red; the black of the back tinged with brown; the rump brownish grey, transversely barred with brown; the wings and tail brownish black, with the white markings less extended and tinged with brown; the band on the side of the head is brown; and the lower parts are greyish white; the sides tinged with brown; the fore-neck and breast marked with faint semi-circular brown lines, of which there are two on each feather."

Messrs. Sharpe and Dresser say:—

"*Female.*—Similar to the male, but has all the colours less bright, and the forehead, and the parts generally of the body which in the male are black, dull blackish brown with an admixture of rufous.

Young.—Brown above, inclining to rufous on the head and back, transversely barred with ochre and black vermiculations; scapularies and rump paler and more fulvous; the bars broader; wing-coverts black, broadly edged with rufous and washed, especially on the least coverts, with ochre; tail brownish black; the middle feathers tipped with rufous, the others with fulvous white, especially on the outermost, which has a little black only on the inner web; underneath fulvous, thickly barred over the whole body with narrow brown vermiculations; chin and under wing-coverts white; under tail-coverts rather deep fulvous."

490 *ter.*—Saxicola leucomela, *Pall.*

It will be remembered that in their monograph of the genus *Saxicola*, P. Z. S., 1874, 225, Messrs. Blanford and Dresser somewhat doubtfully identified *Saxicola capistrata*, Gould, B of A., Pt. XVII., pl. 9, with *leucomela* of Pallas. The objections to this seemed to be that this species (*leucomela*) was not known to occur in India, whereas the bird identified by them as *S. morio* was common in the upper parts of the Punjab and Afghanistan, and that on the whole, though the color of the under tail-coverts, as represented by Mr. Gould, was rather more yellow than is ever seen in *morio*, the plate suits this latter species better than *leucomela*, especially in absolutely wanting the narrow white tips to the secondaries which are always present in *leucomela*.

Referring back to Mr. Gould's remarks, I gather that he must have figured specimens from Sindh. He says:—

"Among the MS. notes on Indian birds by the late Captain Boys, I find the following in reference to the present species."

Now, if Mr. Gould had not had Captain Boys' specimens before him, he could not have known to what species Boys was

really referring, as he was not much of an ornithologist. Captain Boys' remarks were as follows:—

"Shot several specimens on the road to Sukkur, at a place called Mhuta-jeedo, and met with others at nearly every stage lower down towards Sukkur."

It is, therefore, nearly certain that Mr. Gould figured some of these Sukkur specimens, and the occurrence now of *leucomela* in Sindh, not so very far from Sukkur, and the color of the under tail-coverts, as shown in the plate, renders it extremely probable that these specimens were really *leucomela* also, or if not *leucomela*, at any rate a very nearly-allied species, and not *morio*. I say very nearly allied because I notice that Mr. Gould says that his bird has a broader band of black on the tips of the lateral tail feathers than true *leucomela*, and comparing now the Sindh bird, and one from Shiraz with another from Egypt, I notice that, as a matter of fact, both the former have very much broader black tips to the feathers mentioned than the Egyptian specimen. I also notice, as insisted on by Mr. Gould, that they are larger birds, both having the wings 3·8 against barely 3·5 in the Egyptian bird.

The very few specimens available to me prevent my offering any opinion as to whether these, and some other slight differences which I observe, are constant and worthy of specific recognition; I merely note the point for future investigation.

This species had been found by De Filippi in the neighbourhood of Teheran, and was obtained by St. John at Shiraz; but the most easterly point at which it had hitherto been observed was by Mr. Blanford at Rayin, S.S.E. of Kerman, at an elevation of about 9,000 feet in May, in about 58° E. Long. Its occurrence now in nearly 68° E. Long., and if I am correct about Captain Boys' specimens in fully 69° E. Long. greatly extends the South-Eastern range of this species.

I have already, S. F., I., 185, pointed out some of the differences between this species, and what Messrs. Blanford and Dresser identify as *morio* (olim *S. capistrata*, Gould *apud nos.*); but in the comparison I then made I referred to Egyptian specimens of the species. Comparing Sindh and Persian specimens I find that the size is as nearly as possible the same, but that the bills in *leucomela* are a trifle slenderer.

The main points of distinction are, that the under tail-coverts in *leucomela* are (in the Sindh and Persian specimens they are much paler in the Egyptian bird) a distinct though pale russet, while in *morio* they are never more than pale fulvous. The secondaries in *leucomela* are narrowly tipped with pure white—which is not the case in *morio*. A considerable portion of the inner webs of all the quills on their lower surface

is pure white in *leucomela*, whereas in *morio* the lower surface of all the quills is of one uniform color, varying from a a grey brown to a greyish dusky. Apparently in summer the crown, occiput, and nape are nearly pure white, whereas in winter they are almost entirely overlaid with fawny brown. It may be useful to quote for future reference Messrs. Dresser and Blanford's full description of this species.

"*Adult male.*—Crown and nape white, the former strongly tinged with brownish grey; back, scapulars, throat to the upper part of the breast, sides of the head and neck, including a narrow line above the eye, upper parts of the flanks, under wing-coverts, and axillaries glossy jet-black; wings duller black than the back; secondaries narrowly tipped with whitish; rump and upper tail-coverts pure white; tail as in *S. morio*, but narrowly tipped with white; breast and abdomen pure white; crissum and under tail-coverts pale rufous; bill and legs black; iris dark brown. Culmen, 0·7 : wing, 3·8; tail, 2·75; tarsus, 1·05.

Female.—Similar to the male."

660 *bis.*—Corvus umbrinus, *Hedenb. Sund.*

The occurrence of this species in Sindh, of which I previously had no specimen to compare, enables me to confirm the statement made in a former article (*supra* p. 64) that my *Corvus lawrencii* is not in the least like *umbrinus*.

C. umbrinus is a smaller bird, with much smaller bill, feet, and legs, and it has the whole of the head and neck all round, and upper breast overlaid with a strong bronzy-brown tint, which renders it impossible to mistake it or confound it with any of the Black Crows of this part of the world.

The following are the dimensions of the bird from Jacobabad, which is a very fine specimen, and obviously an old adult:—

Length, 21·5 (against 23 to 24·75 in *lawrencii*); wing, 15·75 (against 16·3 to 17·4 in *lawrencii*); bill at front from junction of frontal feathers and bristles, 2·25 (against 2·55 to 2·75 in *lawrencii*); tail, 9·0, (against 10 to 10·5 in *lawrencii*); tarsus, 2·6 (against 2·8 in *lawrencii*, the tarsi being very nearly double as massive in the latter); hind toe and claw, 1·65 (against 1·8 in *lawrencii*).

This species has hitherto been known form North-East Africa, Palestine, and Beloochistan, about as far east as the 62° East Long. I observed it nowhere between Kurrachee and Gwader, and specimens sent me thence have been *lawrencii*. Its present discovery at Jacobabad, and about this species there is no doubt, extends its range to nearly the 69° East Long.

The following is Dresser's detailed description of the species :—

"*Adult male.*—Head and neck glossy dark umber-brown; feathers on the neck white at the base; upper and under parts generally jet black with a steely violet gloss; the under parts intermixed here and there with a few dark umber-brown feathers; wings and tail glossy black, with a violet-blue gloss; bill black; legs black, with a brownish tinge; iris dark brown. Total length about 23 inches; culmen, 2·9; wing, 15·5; tail, 8·6; tarsus, 2·9; middle toe, 2·2.

Female.—Similar to the male."

720 *quat.*—Emberiza miliaria, *Lin.*

This is another species which I have not yet received from Beloochistan. It occurs all over Europe, North-Eastern Africa, Palestine, Turkestan, and De Filippi recorded it as common in the north-west of Persia, but it has not hitherto been procured further east than at Shiraz and Abadeb, both in about 53° East Long. Its present capture at Dowlutpore, if authentic, extends its range nearly 15° to the east.

I have compared the Sindh specimen with European ones; it is quite as dark as most of the English birds; it only differs in appearing to have the dark spots of the sides and base of the throat darker and more confluent than any of the European specimens. It measures :—

Length, 7·5 inches; tail, 3·3; wing, 3·9; tarsus, 1·0; bill from gape, 0·6.

The bird is such a well known European one, that it is unnecessary to do more here than reproduce Mr. Dresser's description of the species :—

"*Male in spring plumage.*—Above greyish brown, the feathers blackish down the centre as in a Lark, those on the crown more narrowly centred; the rump almost entirely greyish brown, with very faint indications of central black markings; scapulars and wing-coverts like the back; the median coverts tipped with white, and also slightly tinged with rufous; the greater coverts externally edged with fulvous; quills blackish brown, externally margined with buffy white; the secondaries far more broadly, these latter being also slightly tinged with rufous; tail rather paler brown, with edges and tips of buffy white; feathers in front of the eye, and an indistinct eyebrow buffy white, with very tiny longitudinal markings of dark brown; ear-coverts dark brown, with narrow streaks of black; under surface of the body creamy white; the throat and fore part of the chest streaked with small spots of blackish brown these spots being very tiny on the throat, where they collect thickly together on the malar line, forming a kind of

moustachial streak; on the chest the spots are slightly more triangular, but on the lower part of the breast they take the form of narrow lines; flanks slightly rufescent, and strongly washed with brown, being at the same time distinctly striped with dark brown; under tail-coverts buffy white, with slight central streaks of brown; under wing-coverts of the same colour, varied down the centre of each feather with greyish; bill horn colour, with a slight dash of red; the edge of the upper mandible and the whole of the lower one yellow; feet pale fleshy brown; iris dark brown. Total length, 7 inches; culmen, 0·52; tail, 3·1; tarsus, 1·0.

"*Obs.*—A great deal of difference is observable in Buntings killed in the spring and summer, some being almost pure white underneath, with very few and indistinct stripes on the breast, the general shade of the plumage being a pale greyish brown; others, on the other hand, are very thickly spotted on the under surface of the body. English examples are slightly darker than the Continental birds, the pale-coloured ones in our collection being from Smyrna and Turkestan, so that, perhaps, this peculiar variation is confined to the eastern specimens.

"*Young.*—Much darker than the adult, and more ochreous-brown, with a very strong tinge of ochre on the breast; the markings on the latter more confused, and not nearly so distinct as in the adult."

751 *ter.*—Linaria cannabina, *Lin.*

The Linnet, if Mr. Murray's discovery is to be relied on, receives an equal extension of its area of distribution to the Common Bunting. Hitherto known as generally distributed throughout Europe and in winter in Northern Africa, extending westwards to the Canaries, and Madeira, and eastwards as far as Turkestan, it had not been previously observed any where south of the Caspian, further east than Shiraz.

The specimen obtained is an adult male, but there is very little red on the head, and that on the breast is considerably duller than in the summer plumage. It is absolutely identical, so far as plumage is concerned, with European specimens with which I have compared it. It measures:—

Length, 5·8; wing, 3·1; tail, 2·3; tarsus, 0·62; bill from forehead, 0·5.

This is rather longer than European specimens, and Blanford has already remarked that some Persian specimens have a rather long bill. I reproduce for reference Dresser's full description:—

"*Adult male in summer.*—Forehead blood red; crown, hind neck, and sides of the neck otherwise brownish grey; the hind

crown with darker striations, and the region immediately round the eye brownish white; back, rump, scapulars, and wing-coverts warm chestnut-brown; the feathers with slightly darker centres; rump lighter and slightly varied with white; upper tail-coverts blackish brown, with broad whitish margins; quills blackish; the primaries margined on the outer web from the base to nearly the tip with white, these margins being very narrow on the outer quills, and much broader on the inner ones; secondaries slightly tipped with white; the inner secondaries like the back, but darker and browner; chin and throat dull white, striped with greyish brown; breast rich carmine red; rest of the under parts white; the flanks washed with brown; beak horn, the under mandible at the base brown; legs pale reddish brown; iris brown. Total length about 5½-6 inches; culmen, 0·45; wing, 3·15; tail, 2·0; tarsus, 0·7.

"*Adult female*—Resembles the male, but lacks the red on the forehead and on the breast; the upper parts are browner and more striped; the breast and flanks are striped with dark brown, and the white edgings to the primaries are less developed.

"*Adult male in winter.*—The plumage is a trifle duller than in the summer, and the red on the crown and breast is much paler and obscured by light edgings to the feathers, which, however, wear off in the spring, and permit the full richness of the red to be exhibited. It is not always that the male loses his rich red breast and head in the winter, and I should think that it is retained by the very old males. We frequently see here in England males in the late autumn with the red richly developed; and Mr. Godman remarks that in the Canaries and at Madeira, the Linnets retain the red in the plumage all the year round.

"*Young of the year.*—Resembles the female, but has both the upper and under parts much more distinctly striped with dark brown.

"*Obs.*—So far as I can ascertain, it is long before the male attains the full beauty of its plumage. After the first moult the young male has the breast red, though not to any great extent; but it takes much longer before it assumes the red on the forehead, and before the red on the breast attains its full brilliancy; and instances are cited by several authors of the male breeding before it has attained its full dress. When in confinement, so soon as it moults, it loses the red, which is then replaced by yellow; and sometimes wild birds are obtained which have the breast and forehead orange yellow, instead of red, probably owing to some want of vigour."

A. O. H.

Notes on Nomenclature, III.*

At page 138 of Vol. V., I expressed an opinion that Mr. Elliot was in error in uniting *Pucrasia castanea*, Gould, with *P. duvauceli*, Tem., and I showed, as I submit conclusively, that Temminck's *description could* not apply to *castanea*, but *must* apply to *macrolopha*.

In reply Mr. Elliot says, *Ibis*, 1878, p. 125:

"The third and last criticism of Mr. Hume is on the error I committed (in his opinion) in uniting the *Pucrasia castanea*, Gould, with *P. duvauceli*, Tem. Now, before replying to this, it will first be necessary for me to say a few words about the last-named species, which, from his remarks, I should judge to be entirely unknown to Mr. Hume. He says Prêtre's drawing in the 'Planches Coloriées' is a 'vile thing, a wretched picture,' and that, 'barring the tail, it is equally unlike every species of the genus' (quite true), and condemns it *in toto*, so far as I can see, because it does not resemble *P. macrolopha*. Now I would state, in justice to Prêtre, that, although his drawing does not equal one of Mr. Wolf's, yet it is a very faithful representation of *P. duvauceli*, Tem. I have no hesitation in saying this; for I am perfectly conversant with his type (the original of the plate in the 'Planches Coloriées'), as the specimen is still, and always has been I believe, here in the Paris Museum; and it was by means of this example and the *type* of *P. castanea* (which I purchased from Mr. Gould, and which is now in the Zoological Museum at Stuttgart) that I became aware that the two were the same species, and consequently placed Mr. Gould's bird among the synonyms of *P. duvauceli*. From their appearance and general mode of coloration, we are fairly entitled to believe that *P. duvauceli* and *P. macrolopha* are as thoroughly distinct species as any that are to be found in the Phasianidæ. Besides the chestnut on the back and sides of the neck, the flank feathers, perfectly exhibited in the plate in my work, differ entirely from any I have ever seen in any specimen of *P. macrolopha*; and I have examined a great many. Mr. Gould's plate does not show these correctly; the chestnut colouring is exaggerated in its extent, and the black feathers, with their light edges, are almost entirely suppressed, a few only showing just above the leg. Temminck's text, it is true, does not describe his plate accurately, but leans more to *P. macrolopha*, but as he says 'La gravure ayant été

* *Vide* Vol. V., pp. 237, 275.

faite depuis *longtemps, même avant la publication des deux ouvrages anglais* où se trouvent de tres-bonnès figures de notre oiseau.' It is most probable that when he wrote his description he took it from an example of *P. macrolopha*, instead of from the specimen figured which was in the Paris Museum, and which he may not have seen for a long time, and was confounded in his mind with the newly-figured *P. macrolopha*."

Virtually therefore it comes to this: Temminck figured *castanea*, (that the type proves), but he described *macrolopha*.

Now this opens up a wide question.

First.—In fixing a name, are we to abide by an author's description or figure, when these refer to distinct species?

I say (where the figure is by an artist, and not by the author of the name) most certainly by the description, which is the name-giver's own work, while the figure is the work of another person.

Second.—Where a description is such that it does not agree with the species, to which the name it defines is applied or proposed to be applied, can the name be saved by referring to the type and showing that, though the description was erroneous, yet the name was really applied to the given species?

I say no, except under two special conditions:—

1*st.*—That the name that would otherwise have been rejected, has by long use acquired a scientific fixity:

2*nd.*—That the name that would otherwise supersede it shall have been assigned by the same authority who bestowed the incorrectly-defined name.

Unless *both* these conditions exist, no reference to a type should be allowed to save a name founded on a description which is *distinctly at variance* with the species to which the name was (or is supposed to have been) intended to apply.

Even for saving the name under these peculiar and necessarily rare conditions, I have no warrant, and I would not for a moment insist on them. I merely suggest them to brother ornithologists as a possible and not unreasonable or illogical relaxation of the general rule, which is, broadly, that names not properly defined or indicated must be rejected.

But though this is the Code rule, as a matter of fact even English ornithologists seem now too generally to hold that no matter, how erroneous a description is, you have only to hunt out the type to establish the name.

To my mind this is illogical. A and B both give names to given species, and describe these, not only imperfectly, that is nothing, but distinctly wrongly on a material point; why should A's name be discarded and B's retained, simply because while A's type has perished B's is still preserved?

I do not see it; but still if ornithologists or naturalists generally approve this, let it be so. Only let us have a definite rule to that effect, and do not let us profess to go by the Code, when we do nothing of the kind.

It seems to me that in the matter of our nomenclature we are getting into much the same fix at which we *have* arrived in regard to our religion.

The Scripture, read to us weekly in church as our guide in life, tells us to sell all we have and give to the poor. The experience of life teaches us that to do this would in ten generations reduce us to the level of savages, that the accumulation of capital is essential to all physical and scientific progress, &c., &c., and in practice we *don't* sell all we possess, (if we can help it) even to give to the poor.

If we impartially survey the existing aspect of religious feeling, we shall find that no one thing has operated more powerfully to confuse the minds of the majority and shake their hold upon the vital truths that (though in widely different degrees of development) underlie all forms of belief amongst civilized men, than the startling divergencies that exist between religious precept and religious practice as *aimed* at and *approved* by the best and wisest.

It is the old story—better no law, than laws that have become dead letters.

Now "*non aliter, si parva licet componere magnis*," do matters stand with our ornithological nomenclature. We have a Code clear and distinct enough on most points, and the priests of our sanctuary are never slothful in preaching it to us, while at the same time their practice is moulded on widely different rules, and it is this divergence more than anything else that has plunged the ornithological nomenclature of even British ornithologists into its existing state of confusion.

We all profess to abide by the Code, but each makes his own gloss on the rules, and amplifies or modifies as seems best to him —reproves his neighbours for a disregard of Code rules, when that disregard eventuates in a nomenclature different from his own, but at the same time boldly transgresses the rules, whenever such transgression chimes in with his own predilections.

With their traditions our ornithologists make the Code of no avail, and on no point is this more conspicuous than in the generally-received practice of going back to types, to prove that incorrect descriptions that ought to be under the Code, rejected and set aside for good and all, really referred to a given species.

There is nothing in the Code about this, and either the practice should be disallowed or the Code altered by a congress of

distinguished naturalists, such as orginally compiled, and again, later, revised the Code.

The Code, admirable as a first evolution of system out of chaos, has naturally in practice proved insufficient for all the varied and complicated combinations of conditions that arise, and is moreover in the opinion of many great Continental and American naturalists, distinctly in error in some points, *e.g.*, in the rejection of not a little truly binomial nomenclature such as Brünnich's, and much of Brisson's.

Surely the time has come for the revision of the Code, in the light of the further experience of the past thirty years, and its re-enactment on a broader basis.

From private correspondence I am led to believe that many eminent Continental and American ornithologists would willingly waive points that they now insist on if we would meet them half way, for the sake of securing a generally-received Code, which would ensure uniformity of specific nomenclature in the great mass at any rate of new standard ornithological works and periodicals.

I am informed by a gentleman, thoroughly competent to offer such an opinion (which I myself am in no position to verify) that there are fully 8,000 species of birds, of which the proper specific names, according to any system that might be definitely decided on, could be settled once and for all without difficulty.

Of course, with such a list once published with the requisite (it need not be exhaustive) synomyms, and accepted by the ornithological leaders, not of Great Britain only but of Europe and America, all the time, and printing now wasted over the synonyms of these 8,000 species might be saved for real ornithological work.

How great and terrible that waste is, every one who has even dabbled in this finiken, frivolous, but alas as matters now stand, almost inevitable branch of our work will freely admit, but the great tendency that this has to absorb the attention, and divert to mere words the energies and talents that should be devoted to facts is even more lamentable, though much less generally acknowledged and realized.

Surely the time has come for a strenuous and combined effort on the part of all who love science unselfishly, and for her own sake to confine this great and growing evil within the narrowest possible limits. Surely the time has come, not merely for a revised *British* Code, but for a new Code, universal as are the aims and blessings of science herself.

Science will have to leaven the whole mass of mankind ere these, now wholly absorbed in the ephemeral pursuits of the day, selfish money grubbing or position grasping, (thinly

veiled under the euphueisms, business or politics) will cease to cherish national jealousies and prejudices, but in the world of science far removed above the din of warning selfishness, whether individual or national, the touch of truth should make the whole world kin, and the whole universe fatherland.

This is but a poor little insignificant thing, this proposed International Code of Ornithological Nomenclature, but still it would be a step, however small, in the direction to which all our efforts should tend, and it is one that I have reason to believe now feasible. Will none of our great ornithologists at home make the attempt and set the matter on foot?

A. O. H.

On an overlooked species of Reguloides.

By W. Edwin Brooks, C.E.

On several occasions, when my friend Mr. Mandelli sent me examples of *Reguloides superciliosus* from Darjeeling, I was struck with their very bright coloration. I had often obtained fresh autumnal examples in the plains of the North-West Provinces of India, but they were all much duller in tone. I observed that the colour of the supercilium, and of the head generally, differed. The supercilium being in the one case brownish white or exceedingly pale brown, and in the other pale yellow. The same difference existed in the colour of the cheeks, a pale brownish colour against greenish white, more or less tinged with yellow in the other bird. I did not then consider what such variation implied.

Two or three weeks ago another friend, the Editor of this journal, sent me three examples shot at Shillong in October last. These were in beautiful fresh autumnal plumage. In addition to the greenish yellow supercilium and the pale yellowish cheeks, there was a blackish olive band on each side of the head, which expanded laterally towards the nape of the neck, where they united, forming a sort of dusky narrow half collar, most distinctly and abruptly separated from the olive green of the back. Down the centre of the crown was a greenish grey coronal streak, very much more marked than seen in North-West examples. This head coloration, *i.e.*, the dark lateral bands, much resembled that of *Reguloides occipitalis* or *R. trochiloides*. The other two examples did not show this peculiar head coloration so strongly, and they were not quite so bright in plumage. I have the same bird shot near Howrah in January, and I have seen others in the Indian

Museum obtained near Calcutta. *These all showed that the fine dark markings of the head fade very rapidly.*

This appearance of the head, coupled with the bright plumage of the birds, led Mr. Hume to think he had got a new *Reguloides;* but this is not the case, I think, and the brown-headed bird of the North-West, hitherto standing unchallenged as *Reguloides superciliosus*, is the new bird, if new it can be called, and at any rate the one which is now in want of a name.

The brightest North-West example I ever obtained, I sent to Mr. Dresser; and it is referred to in Birds of Europe.

I shall quote the entire description of the species from Mr. Dresser's work :—

Reguloides superciliosus.

"*Adult male in breeding plumage* (Lake Baikal, May 22nd.) Crown, nape, back, and scapulars greyish olive; rump and upper tail-coverts washed with green; wings dull dark brown; all the quills, except the inner secondaries, edged with yellowish green on the outer web; inner secondaries slightly, and larger and median wing-coverts broadly, tipped with white, slightly shaded with sulphur yellow; rectrices dull dark brown, narrowly edged on the outer web with pale yellowish green; sides of the face white, intermixed with greyish olive; from the base of the bill over the eye to the nape, a tolerably broad dirty white stripe; underparts including chin and throat white, on the flanks washed with greenish grey; bill dark brown; iris dark brown; legs light brown. Total length about 3½ inches; culmen, 0·45; wing, 2·1; tail, 1·7; tarsus, 0·7; first primary short, but 0·25 longer than the wing-coverts and 0·9 shorter than the second, which is 0·3 less than the third; third and fourth about equal, being the longest.

"*Adult male in autumn* (Darasun, 29th August) differs from the above-described bird in having the upper parts very much greener, the tips to the wing-coverts and secondaries, and the stripe over the eye (which latter is large and clearly developed) being bright sulphur yellow instead of white; flanks washed with pale greenish yellow, with but little trace of grey. A specimen shot by Mr. W. E. Brooks, of Etawah, on the 16th October, has the upper parts duller than the bird killed in August above described; the margins to the wing-coverts and secondaries are dull yellowish buff; *the superciliary stripe is yellowish buff; and the flanks and breast are washed with pale buff with a yellowish tinge.*

"*Female.*—Similar to the male, but a trifle duller in colour."

I have given in italics the part of the above description relating to the Etawah bird, that I wish to be noted. I have not seen a brighter-coloured specimen of the North-West bird.

In the summer, these little birds lose the yellow, and often the green colour, very much indeed. It does not take long for a yellow supercilium to fade to dull white. To be described and compared correctly, all these birds should be dealt with in early autumnal plumage. Those of brightest plumage are the young in their first plumage. Most of us know that the Willow Wren, after its first moult, is never so yellow again; in fact it can only be called a yellow bird before the moult.

I have shot hundreds of *Reguloides* in the plains of the North-West, but I never once obtained one answering to Mr. Dresser's description, except so much of it as refers to my bird. Anything like the fine Shillong birds I never saw there. I have also looked over the collections of friends from the North-West, but all were what I shall distinguish as the brown-headed bird. Take the head of *Phylloscopus rufus* (*P. collybita*) or of *P. tristis*, and you have a head not unlike that of our North-West *Reguloides*, except that these have no coronal streak. The eyebrow and cheek or side of face are not those of *Reguloides superciliosus*, the Shillong and Sikhim bird. The original description of the bird is:—

"61. Yellow-browed Warbler.

Description.—Above, greenish; beneath, pale coloured; on the crown of the head a pale streak; over the eye a stripe of yellow. Inhabits Russia." *

"Yellow-browed Warbler, *Lath.* Syn., II, p. 409, n. 16. Habitat in Russia. Penant: From G. F. Gmelin's systema naturæ, *Lepsiæ*, 1788, page 975.

This description suits the Sikhim and Shillong bird, also Mr. Dresser's Russian birds and those of Lower Bengal, but it does *not* suit the brown-headed bird of the North-West in any stage, from September to June. I have a couple of birds shot near Calcutta by myself in January last, and it is very easy to see that they are identical with the fine Shillong examples, though a good deal faded. But these birds vary much in brilliancy even in new feather.

I shall now briefly note the points of difference:—

1. The supercilium, lemon coloured or yellow in one, (*superciliosus*,) and brownish white or pale rufous buff in the other. In each case the supercilium would fade to what Mr. Dresser calls dirty white.

2. Greenish white cheeks, or sides of face more or less tinged with yellow (in *superciliosus*) against the brownish cheek of the other bird. In each case the cheek is minutely mottled

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"* Mr. Penant: From "A General Synopsis of Birds," by John Latham, M.D., Vol. II, part 2nd, page 459. On this is founded Gmelin's *Motacilla superciliosa*; thus described: 120—*Motacilla superciliosa*. M. supra virescens, subtus palida, verticis stria pallida, superciliis flavis."

with brown. We have in both these points cool coloration against one inclined to warm.

3. The peculiar dark lateral bands on the side of the head of the Eastern bird, and the well-defined greenish grey coronal streak, also the lateral expansion of this dark colour at the nape, forming a narrow half-collar. No such appearance ever being visible in the North-West bird, the head of which is a plain olive brown, often more brown than olive, blended into the colour of the back, and having the coronal streak very faintly defined, often not visible.

This difference of crown of head is alone, to my mind, conclusive.

4. The very superior greenness of the back, wings, and tail of the Eastern bird or *Reguloides superciliosus*.

5. The brighter yellow of tips to greater coverts in *R. superciliosus*; in fact, wherever both birds are yellow, that of *R. superciliosus* is much purer.

I remember seeing last year the English-killed example of *R. superciliosus*, in the Museum of my friend John Hancock. This is identical with my Calcutta birds, and has the pale lemon-coloured supercilium and the generally greenish head.

It appears first to have occurred to Mr. A. O. Hume that we had two distinct birds under the one name; so with his permission I propose calling the North-West bird

Reguloides humei, the Brown-headed or *Hume's Reguloides*.

Like *R. superciliosus*, but has the supercilium pale brownish buff to brownish white, as in *P. tristis*; cheeks strongly tinged with pale ruddy buff, and seldom having an admixture of yellow; they are mottled as in the affined species with dark brown; top of head, brown, rather inclined to olive; coronal streak very faint, often not visible; colour of top of head at all times blended into colour of back; back wings and tail as in *superciliosus*, but of less bright green, and yellow tips to wing-coverts not so pure; in other respects the plumage much resembles that of *superciliosus*.

An examination of a series of Siberian and Russian examples would be interesting, to show whether both birds have a similar migratory range. Perhaps *R. humei* does not go north of the Himalayas and ranges adjacent to them. The Chinese bird will be *R. superciliosus* most probably.

The separation of this *Reguloides* will, I know, be questioned by European ornithologists; especially by those who follow Darwin and believe in the mutability of species; but all I can say is, let any one who likes try and prove identity in the present case with the facts that I have pointed out before

him. A mere opinion won't do. He must satisfactorily dispose of all the facts noted in this paper. I was extremely puzzled by Mandelli never sending me a bird that corresponded with my brown-headed North-West ones, but now the reason is clear. His *R. proregulus*, on the other hand, agreed perfectly with North-West Himalayan examples, which to my mind disposes of Mr. Hume's argument as to the habitual greater intensity of colouring in individuals obtained in moister localities. The exact geographical distribution of the two closely-affined *Reguloides* is an interesting question, and of this we may know more hereafter.

Although the two birds are close to each other in general appearance, the three *Erythrosterna—parva*, *albicilla*, and *hyperythra*—are even closer. I could cite many other species with slighter differences than those existing between the two *Reguloides* under consideration.

I have heard the call note of each, and I cannot say they are different: but we have apparent identity of note in many species where there is the most marked distinction. A distinct note is, however, conclusive.

Since the above paper was written I have examined a selection of the two birds from Mr. Hume's museum.

As regards darkness of head, *R. superciliosus*, or the greener bird, is very variable, some having the top of the head green without any blackish markings. It is most probable that the very green and yellow birds, without the dark *trochiloides*-like head coloration, are those in first or nestling plumage, and that the dark colour is not acquired till after the first moult. The converse of this would hardly be likely. I know that young Willow Wrens (*P. trochilus*) are of lighter tone, and immeasurably more yellow than the old birds. In fact, the old bird cannot be called yellow in comparison. This rule is, I believe, pretty general as regards these little birds; and *R. superciliosus*, in spite of its wing bars, is wonderfully close to *P. trochilus*. They are both Willow Wrens, and have similar call-notes, nests, and eggs.

The upper figure on the plate of *R. superciliosus* in Mr. Dresser's "Birds of Europe," shot at Darasun, 29th August, I take to be a nestling bird in first brilliant green and yellow plumage. It precisely agrees with Mr. Hume's specimen procured at Mergui in Tenasserim, on the 6th November 1874. On the other hand, the lower figure of the plate is well represented by some of the January Burmese examples of the old bird, somewhat faded. I don't think much, if any, of the blackish olive head coloration would be left by the middle of summer. Traces of it are visible on two birds I shot near Calcutta about Christmas time last year. I decidedly think that these dark-headed birds are the old ones after their autumnal moult; and

the young would probably acquire this plumage in the early spring moult. I have shot great numbers of *Reguloides* and *Phylloscopi* undergoing a spring moult. I am not sure whether quill and tail feathers are then changed; certainly the body feathers are, including the wing-coverts.

Sylvine birds, with a spotted nestling plumage, moult the first autumn, and whether they undergo a spring moult again I don't know; but I have shot Stone Chats moulting in March. I am pretty sure the migratory *Phylloscopi* and *Reguloides* do not undergo an autumnal moult in the year that they are hatched. I once brought up a young *P. trochilus* from the nest, which a cat had found out; she had eaten two of them. This little bird was as usual very yellow; and when the time for migrating had come, there was not the slightest signs of a moult, but it was in perfect plumage. It had become so tame that I had great difficulty in losing the little bird amongst some bushes where I turned him off. When he appeared busy catching insects and searching the leaves, I ran off, only to find him on my shoulder again before I had gone a hundred yards. At last I avoided him, and I hope he lived to acquire mature plumage. He had abundance of insect food, and used to clear the window panes of flies in a very short time every day. When satisfied he would go to rest on my shoulder, and stay there till I replaced him in his cage. I mention this to show that he was well fed, and that the moult was not retarded for want of good food.

It is not always easy to separate the young birds of *R. humei* from those of *R. superciliosus;* for the former then has its maximum amount of green and yellow, still some of the tawny or rufous tone can always be found about the head or neck enough to separate the bird; but let the mature plumage once be acquired, and all difficulty vanishes, and the two birds are then very easy to deal with, for they are most pronounced.

R. humei varies much as regards rufous tone; some birds having this colour much more pronounced than others. Similarly, with regard to dark head markings of *R. superciliosus*, there is great individual variation, to such an extent as to lead to the idea that the very dark *lugubris*-like ones were another, and a third bird, but I think this can hardly be the case. European ornithologists, who have seen much of this little bird, may be able to throw further light on the subject.

Mr. Hume sent me one of the birds I shot off the nest in Cashmere. There were four eggs which I marked with a small cross. The bird is decidedly *R. humei*. A Cashmere example, procured in Cashmere by Doctor Jerdon in 1867, is also the same species.

At Mr. Brooks' request I append a note to this paper. Most certainly the two birds differ conspicuously in appearance, and most certainly their geographical range is distinct. I have a very large series, no less than 120 specimens, now before me killed at various seasons of the year, from the latter part of August to the end of May. The very brightest and greenest specimens of the North-West bird killed at the end of September or very early in October, are clearly browner, and less green than, and have a different tint of colouring to, any that I have seen of the Eastern bird.

In going through even a large series like mine, I have not found the smallest difficulty in separating the two forms.

The following are *lists* of the specimens before me.

1*st*.—Of the brown-headed species *R. humei*, Brooks.

Murree; 3 specimens; 10th September to 26th October.
Pir Punjal, Cashmere; 1 specimen; 12th May.
Gulmerg, Cashmere; 4 specimens; 26th May, 6th June.
Dharumsala; 2 specimens; April, May.
Simla; 1 specimen; October.
Mussoorie; 2 specimens; September and October.
*Middle range of Hills, north of Mussoorie; 1 specimen.
Delhi; 7 specimens; October, November.
Sambhur; 1 specimen; November.
Futtehgurh; 6 specimens; October, November.
Etawah; 37 specimens; August, September, October, November, January, February, and March.
Cawnpoor; 17 specimens; October, November, February and March.
Mogul Serai; 1 specimen; November.
Dinapoor; 3 specimens; November.
Durgapur; 1 specimen; November.
Saugor; 10 specimens; October, November, December, January, February and March.
Raipoor; 1 specimen; March.
Sumbhalpore; 2 specimens; December.

2*nd*.—Of the greener bird, *R. superciliosus*, Gm. *apud* Brooks.

Darjeeling; 2 specimens; January.
Howrah; 2 specimens; December.
Syriam, near Rangoon; 1 specimen; January.
Thatone, Tenasserim; 1 specimen; December.
Mooleyit „ 2 specimens; February.
Salween Dist. „ 1 specimen.
Kaukaryit, Houng-Thraw River; 2 specimens; January.
Topee, Tenasserim; 1 specimen; January.
Amherst „ 1 specimen; January.

* Since this was written a large series received from the *Valley* of Nepal, all prove to belong to the brown-headed form.

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Mergui, Tenasserim; 1 specimen; November.
Shillong, Assam; 3 specimens; October.

All Brooks' breeding birds from Cashmere belong to the brown-headed race. If the birds are distinct, then all his eggs belong to that, and not to the true *superciliosus*.

The difficulty that I have felt in accepting the two birds as distinct species, for I have long recognized the difference in tone of colour in the Burmese birds, consists in my knowledge of the great variation in this, that is produced by differences of humidity in the tracts inhabited.

Compare the North-West Provinces *Pericrocotus brevirostris*, *Glaucidium brodiei*, *Syrnium nivicolum*, with specimens of the same species from Sikhim. The coloration is invariably and conspicuously deeper in the latter. Take *Pericrocotus roseus* from the dry North-West, and the same bird from humid Tenasserim. Take *Pericrocotus peregrinus* from arid Sindh, and the same bird from the moist slopes of the Assamboo Hills. Take *Picus mahrattensis* from dry Upper India, and the same birds from below the ghâts in Rutnaghiri.

Great differences in rainfall sharply restrict the areas of distribution of many species, while in the case of others possessing greater adaptive capacity they greatly change the tone of plumage. Look at all the pale Persian and Belooch forms.

I might multiply instances indefinitely, but the thing is too apparent.

At the same time such changes, though common to a degree, are by no means the rule. Numbers of species undergo no such changes. *Reguloides proregulus* is, as Mr. Brooks remarks, the same alike from Murree to Debrooghur, but then it must be remarked that to the best of my belief this species is *restricted* to a humid climate, and is never found in the drier regions except as a bird of passage. But there are many of whom this cannot be asserted, and whose colours seem unaffected by climatic variations of this nature.

Whether then the North-Western and Eastern forms of this *Reguloides* shall be accepted as distinct species, is a mere matter of opinion; sometimes I have thought that they should be, as indeed I have of the two extreme forms of *Pericrocotus peregrinus*; but on the whole my present views incline the other way.

Still when *Crocopus chlorigaster*, *phœnicopterus* and *viridifrons*, *Thamnobia cambaiensis* and *fulicata*, and a score of other similar pairs and trios are accepted as distinct species, no logical grounds for rejecting these can be put forward, and as to my mind all classification is to a great extent, as regards minor details like this, a matter of convenience, it does not appear to me to matter one *iota* whether these closely-affined forms are regarded as species or races; the only important point is

that their differences should be clearly recognized and recorded, and for this we are all, whatever view we may take of the species in question, very much indebted in this case to Mr. Brooks.

A. O. H.

Observations on Motacilla alba, Linn., and other Wagtails.

By W. Edwin Brooks, C.E.*

The continuation of my friend Mr. Seebohm's paper on the Ornithology of Siberia in the *Ibis* for July 1878, is to me most interesting, and he deserves the thanks of all ornithologists for the number of valuable facts brought to light, which, but for his energy and enthusiasm, might for ever have remained unknown. Some of his identifications are most interesting, but to one, which by the bye is also Mr. Dresser's, we must, I think, most decidely object.

A resemblance in some particulars does not prove identity, but only close affinity. For identity, we must have the closest correspondence in all material points. Now, suppose the adults of any two recognized species were absolutely undistinguishable, and that the young of each did not correspond in all material points, then the two birds are *selon moi*, as specifically distinct as any two with widely distinct adult plumages. I am referring more particularly to small insectivorous birds and Warblers, where we very seldom see variation, if at all.

Amongst some genera there may be found slight specific variation, but the species belonging to migratory genera, as *Motacilla*, *Budytes*, *Anthus*, *Ruticilla*, *Sylvia*, *Acrocephalus*, *Locustella*, *Phyllopneuste*, and many others that might be mentioned, are wonderfully constant to their specific characteristics, even though collected thousands of miles apart. Now *Anthus trivialis* of India is absolutely undistinguishable from the same bird in Europe. So also with *Erythrosterna parva* and *Butalis grisola* of the two Continents. *Budytes rayi* of Yarkand is exactly represented by Mr. Dresser's plate in "Birds of Europe," and I have compared the Yarkand examples with European ones, and there was not the faintest difference. *Curruca rufa*, the Common White Throat of the two Continents, corresponds most minutely. *Reguloides superciliosus*, obtained near Calcutta, does not differ a hair's breadth from the example shot by Mr. Hancock at Hartley on the Northumberland Coast. All the Ducks agree marvellously well, and so do numbers of other species that I might mention; but I think I have cited enough to show

* It is almost needless to repeat that the Editor is in no degree responsible for the opinions of his contributors.

that we must look for close specific correspondence between the two Continents, instead of divergence as regards the same species. Certainly, the same *Motacilla* ought not to be notably different in the two Continents.

Of the two Wagtails in question, *M. alba* and *M. dukhunensis*, Mr. Seebohm states nothing regarding the song of each. All black and white Wagtails have songs, and that of *M. madaraspatana* is particularly good. Suppose *M. alba* and *M. dukhunensis have* different songs; what then? But similarity of song won't prove identity, for I don't think any one could distinguish the songs of *Erythrosterna parva* and *E. hyperythra* without seeing the birds. The call-notes of the black and white Wagtails are wonderfully alike, so are those of the Budytes.

The points of difference in *M. alba* and *M. dukhunensis* worth noting are:—

1. *M. alba* has, as a rule, a darker grey back than the other.

2. *M. alba* does not show nearly such white greater coverts as the other bird, *and it ought to do so if the same.* It never does, and on this alone specific identity is impossible. Now I can always separate the immature of *M. luzoniensis* (*M. alboides* apud *Seebohm*) by the superior whiteness of the greater coverts, and this is the only mode of separation where both birds occur—at Patna and Dinapore for instance. I, therefore, from my own observation, attach the greatest importance to the white wing-coverts that Mr. Seebohm thinks lightly of. With reference to the white wing-coverts, Mr. Seebohm says: "The latter form seems to be confined to Siberia and India."

Intermediate and apparently connecting examples are not conclusive; they prove great similarity or close affinity, *and nothing more.* By intermediate or undecided birds, two species could be united which the pronounced birds of each would utterly condemn. A fully mature or perfect bird against a fully mature bird is a fair comparison. Take a fine-plumaged *M. dukhunensis;* let it weather and wear for some months, and its wing-coverts will have lost so much of their white ends that it would match an *alba* in better plumage, and thus the two species are bridged over; falsely so, I say, in such delicate cases fresh feather must be compared against fresh feather, and birds should be of the same age.

On the other hand, search the *alba* district for the white wing-coverts of *dukhunensis*, and you completely fail.

3. *Dukhunensis* is, I believe, the larger bird of the two; and the bill is stronger and I think rather longer as well.

4. The young of *alba*, in first plumage, have a pale yellow or straw-coloured tint about the head, strongly differing from the pure white of the lower parts. I have shot great

numbers of young *dukhunensis* on their early autumnal arrival, but never saw this yellow tinge so conspicuous on young *alba* on any single head. This difference alone is conclusive, even if the adult birds had exactly the same wing-coverts. A similar difference is observable in the young of the two *Budytes*, *rayi* and *flava*, one being dull fulvous white, and the other white. This goes strongly against the lately fashionable theory, as baseless as it was fashionable, that all the species of *Budytes* are varieties of one, viz., *flava*. The idea that *melanocephala*, or *cinereocapilla*, or even *rayi*, might have been the source, appears not to have occurred. And what about the long-billed and most distinct *B. taivanus?* It was confounded with *rayi;* but a glance at it forbids the idea, its structural difference being so decided.

5. Why should *M. alba* and *M. dukhunensis*, if the same bird, differ, since other Wagtails, common to both Continents, as *B. melanocephala*, and *B. cinereocapilla*, do not differ? My observations lead me to the conclusion that the black and white Wagtails are remarkably constant in their characteristics, and they are about the last birds in which I should expect Continental variation. Difference of longitude, no more than difference of latitude, can affect the small insectivorous migrants. In the present case I would not consent to identity until the white wing-coverts are as common in Europe as in India, and until the young in both Continents were alike. A slight difference is often of very great importance, and a constant difference, however slight, is against identity, and is of the same value as if the differences were numerous and most marked. To the ornithologist it should be so.

Take two Buntings that Mr. Dresser keeps distinct, and I think justly so—*E. cia* and *E stracheyi*. The differences are not so well marked as in the two Wagtails. In the latter we have not only adult difference and geographical difference, but we have, too, a juvenile difference. I don't see what more is required for specific distinctness. The difference in the juvenile plumage is a very strong one, stronger than the wing-coverts of the adults. It cannot be set aside.

I think we should also take great notice of the much superior grey of *dukhunensis* at all times. *Alba* is much more dusky.

I forget whether adult *alba* is tinged with straw colour about the head in winter. *Dukhunensis* never is.

This question leads to another: European examples of *B. flava* don't agree as regards the head with those of India. The grey of the crown of the former is darker, and there is an amount of *very dark grey* on the cheek, mixed with a small white streak or two, which dark grey we do not see in the Indian

bird. The latter's cheeks are pale grey and pure white, and the crown is always of a pure light grey, in full plumage. I think, too, the tail of the European species is longer; but of this I am not quite sure. We ought to have the same exact correspondence in *flava* of the two Continents that we have in *melanocephala* and *cinereocapilla;* and I therefore propose that Hodgson's term of *Budytes dubius* be used for the Indian representative of *B. flava.* The adult females in breeding plumage of each should be compared, and the young in first plumage.

Abolishing a recognized species where a slight difference is well known to exist, as in *M. dukhunensis,* is not satisfactory; and I always feel, in such a case, that an injustice has been done to a bird worthy of a better fate. When we have not the means of absolute proof, *and intermediate bridging examples are not proof,* the bird should be allowed to stand for the sake of convenience. It does not much matter, while we have this differing "form" constantly before us, whether it is actually specific or not. Even Mr. Darwin himself could not prove the point. We may abolish this species or that, but while one strong fact remains, the majority of observers won't concur.

The most perfect case of bridging over by means of intermediate forms, is that of the Skylarks. A skin of *Alauda gulgula* could be stuffed inside that of a large Persian or Punjab Skylark. One is a giant and the other a pigmy, yet by intermediate forms Mr. Dresser has bridged them over. Is this satisfactory? Worst of all, both are found in India, but the large bird, *A. dulcivox,* is only a cold weather visitant, while *gulgula* breeds as far south as Cawnpore and Bhaugulpore. The Skylarks are a puzzle to us all, and we cannot tell exactly what constitutes specific difference in *Alauda.* Certainly there are a good many kinds, and I believe the end of the world will come before they are all correctly separated.

When man interferes with Nature, any thing may be done; and a Bantam and a Cochin-China fowl may be legitimately bridged over; but Nature, as far as birds are concerned, with which man does not interfore, is immutable, and especially so are the small sylvine migrants. Six thousand years would not* alter the tint of a Reed Warbler, nor the form of its wing and bill, and I don't see why a Wagtail should be less constant to its specific characters.

Motacilla luzoniensis, Scopoli.—This Mr. Seebohm proposes to call *M. alboides,* Hodgson. It can never take this name, for *M. alboides* is beyond all doubt the winter plumage of

* Is not this, just a little, begging the question?—Ed.

M. hodgsoni, Gray. There is a note upon the drawing of Hodgson's *M. alboides* as follows: "*Motacilla hodgsoni*, Blyth, *alboides mihi*;" then follow dimensions that I need not transcribe, and below them this note: "Valley of Nepal, January 15th, sexes and youth all together." After this particulars of bill, nostrils, feet, &c., note carefully that Hodgson refers to a *winter* bird, when no *luzoniensis* would be found there, for it migrates far south, even to the islands of the Indian seas. Besides, his drawing shows no white band down the sides of the neck; this white band being in connection with the white of the forehead, as in *dukhunensis*, *alba*, and *lugubris*. Moreover, the back is shown to be pure black, and the back of *luzoniensis* is *not* all black in winter. Hodgson's drawing is a very good one indeed of *M. hodgsoni* in January. Its throat, to the extent shown in the drawing, is white, and does not become black again till the spring is well advanced. I have had the bird in every month of the year. *M. personata* also gets a white throat in winter. Let Mr. Seebohm carefully examine Hodgson's drawing No. 133, the copy in the British Museum, the original being with Mr. Hume, and he will see that it cannot possibly represent *Motacilla luzoniensis*.

If the white of the forehead in Sonnerat's plate is not confluent with the white of the sides of the breast, as in *alba*, *i.e.*, if there be not an irregular white band down the side of the neck joining the white forehead and white about the region of the eye, this band reaching as low as bend of wing till it communicates with the white of the lower surface, then the bird is *not* that generally known as *luzoniensis*, but is probably immature *personata* or some affined species; but it could not be the resident Himalayan *hodgsoni*.

In this case why should not Gould's term of *leucopsis* be adopted, which is certainly not applicable to any other bird?

Novelties.

Garrulax subcærulatus, *Sp. Nov.*

Like G. cærulatus, *but more olivaceous and less rufescent above, and with the ear-coverts, feathers behind the eye, and posterior portions of cheeks, silvery white, more or less tipped with black, and with the three exterior tail feathers on either side broadly tipped with white.*

This markedly distinct, but yet closely-allied, species replaces *G. cærulatus* of Nepal, Sikhim, &c., on parts of the Khasia Hills near Shillong.

On the difference of the colour of the upper parts, marked as it is, I lay no stress, because Sikhim and Nepal birds of this class are always deeper colored and more rufescent than specimens of the same species from the Khasias. But I have examined over 30 specimens of *cærulatus*, and not one exhibits a trace of the broad and conspicuous white tippings to the three external lateral tail feathers, characteristic of the present species, nor does one of them show a trace of the large pure white patch on the either side of the head that distinguishes *subcærulatus*.

The following are dimensions taken from the skin :—

Length, 10 to 11 ; wing, 4·2 to 4·6 ; tail, 5·0 to 5·8 ; tarsus, 1·48 to 1·6 ; bill at front from frontal bone, 0·96 to 1·03.

Amongst our birds collected in the Malay Peninsula are two species which I am unable to identify ; they may possibly not be new, but I have spent some time in consulting every available authority, and I cannot find any trace of them.

Iole terricolor, *Sp. Nov.*?

Above, earthy brown ; chin, throat, abdomen, vent, lower tail-coverts, pure white ; breast, very pale dove brown ; ear-coverts, pale fawn brown.

Length, 8·0 ; wing, 4·0 ; 5th and 6th primaries, equal and longest ; 4th, 0·1 ; 3rd, 0·3 ; 2nd, 1·0 ; 1st, 2 inches shorter ; tail, 3·9 ; bill at front, straight from frontal bone to tips, 0·9 ; tarsus, 0·7.

The entire upper plumage an almost perfectly uniform pure brown, not very light, a color intermediate between an earth brown and hair brown, but perfectly pure, and without the faintest admixture of either rufous or olive ; lores and ear-coverts a lighter rather warmer brown, much the color of the ear-coverts in *Hemixus flavala ;* a dark patch under the eye at the base of the lower mandible, as in this latter species, but not so dark colored ; chin, throat, wing-lining, inner margins of quills, abdomen, vent and lower tail-coverts, white ; breast pale grey or dove brown ; tail quite even ; feathers of the forehead, crown, and occiput all sharply pointed.

Bill as in *Iole*, that is to say, straighter, longer, and with a sharper culmen ridge than in *Hemixus*, but not so large as in *Hypsipetes*, though of much the same character.

This species is closely connected with the green section of the *Hypsipetes*, with *Hemixus* and *Iole*, but it is, in my opinion, closer on the whole to *Iole*, although no doubt the shape of the feathers of the throat remind one more of *Hypsipetes malaccensis*. The bill, however, is much slenderer.

This species, of which only one specimen was obtained, was shot in the neighbourhood of Malacca, and no colors of soft parts recorded, but the bill appears to be a moderately dark brown, paler on the lower mandible, and the feet appear to have been a moderately pale grey brown.

Rallina telmatophila, *Sp. Nov.*

Rich olive brown, breast paler; chin and throat, white; wing lining, axillaries, and abdomen, flanks, and lower tail-coverts, black, broadly banded with white.

Length, 9·0; wing, 5·35; tail, 3·0; tarsus, 1·7; mid toe and claw, 1·66; bill at front, 1·2.

The sex was not recorded, neither were the colors of the soft parts, but in the dry skin the legs and feet are almost black, and were probably deep green.

The upper mandible deep brown, the lower mandible greenish horny.

The entire upper plumage, visible when the wings are closed, a very rich warm slightly olivaceous brown, almost precisely the color of the back of a good dark specimen of *Cinclus asiatica*, or a freshly-moulted specimen of *Dumeticola affinis*. A paler brown line from the nostrils over the lores; lores, cheeks, and ear-coverts dull earth brown; the bases of the feathers whitish; chin and throat pure white; breast, a pale dingy slightly olive brown; entire abdomen, sides, flanks, axillaries, wing-lining, lower tail-coverts, black, broadly banded with white; quills, with the inner webs brown, and on the lower surface the basal portions with large white spots or imperfect bars not extending to the shafts; the 3rd and 4th quills are equal and longest.

This bird is clearly closely connected with *Rallina fasciata*, but it has a longer bill, much more massive tarsi, green or black legs, pure white chin and throat, no barrings on the upper wing-coverts or outer webs of the quills, and it has the red everywhere replaced by olive brown.

Except in the size of bill our specimen does not differ greatly in dimensions from male *fasciata*, but the bill is very conspicuously larger. Shot a few miles inland from Malacca.

Recently-described Species.

Republications.

Turdinus nagaensis, **God.-Aust.*

"Above, dark umber brown throughout, with no streaking on the feathers of the head; beneath the same colour, but much paler, with a slight rusty tint shading into and adjacent to the dull whitish centre of breast; chin also whitish; irides dark brown; legs and feet light sienna grey.

"Length about 5·7; wing, 2·2; tail, 2·2; tarsus, 0·90; bill at front, 0·50; mid toe and claw, 0·72; hind toe, 0·35; claw, 0·3.

"This species is very distinct from *T. garoënsis* in its deeper umber coloration and smaller size; particularly is this the case in the size of the legs, feet, and the hind claw. Mr. A. W. Chennell, of the Topographical Survey, obtained this bird in the Eastern Naga Hills."—*A. & M. N. H., December* 1877, *p.* 519.

Staphidea plumbeiceps, *God.-Aust.*

"Head ash grey, purer behind; feathers narrowly edged paler; back pale olive brown, a few feathers pale shafted; wings umber brown; tail darker, the four outer feathers tipped with white, increasing outwards diagonally; lores pale grey; the ear-coverts only to just beneath the eye chestnut; the feathers white shafted; chin, throat, and all the lower parts white; flanks pale sepia grey; under tail-coverts the same, tipped white; irides reddish brown; legs umber.

"Length, 4·6; wing, 2·3; tail, 2·05; tarsus, 0·7; bill at front, 0·3.

* This I at first thought must be *Pellorneum tickelli*, Blyth, described, S. F., I., 299 note, which I have from Amherst, Tenasserim, and also from Suddya, but I now find that it is identical with *Pellorneum ignotum*, Hume, S. F., V., 334, which name has precedence.

"This bird is close to *Staphidea torqueola*, Swinh., but in that species the chestnut commences at the base of the lower mandible, passes under the eye, and round the nape in a broad band of chestnut brown, and the last three tertiaries are margined white on inner web. This is absent in the Assam bird, obtained by Mr. M. J. Ogle near Sadya and Brahmakhend, Eastern Assam.

"In my note book I find that I obtained one example in the Dikrang valley, Dafla hills, which I shot at camp No 9, but this was subsequently lost somehow or other, and therefore I did not bring it in the list of birds from the Dafla hills, published in the Journal, Asiatic Society of Bengal."—*A. & M. N. H., December* 1877, *p.* 519.

"Can this be *Ixulus striatus*, Blyth? Blandford, in J. A. S. B., 1872, p. 166, says the Darjeeling bird is the same as the Tenasserim type in the Calcutta Museum, but mentions that it has a rufous supercilium, which none of my specimens possess.

"Since writing the above, I have received from Mr. W. Blandford, in a letter from Calcutta, in reply to some questions I wrote to him regarding this species, *Ix. striatus*, some remarks which I now quote: "I have two specimens of the Sikhim bird. I have recompared them with the type from Tenasserim, and I cannot understand how I can have identified the two. The Tenasserim bird is, as Blyth describes it, greyish brown (ashy brown according to Tickell); the cap may have been a trifle darker, but very little, not so distinct I should say as in the Sikhim bird, and the white shafts are far more conspicuous in the Tenasserim type. Above all the bill is much larger in the latter, the difference is so marked that I think that I must have compared a Sikhim specimen differing from those I have now. The cheek patch is distinct, but faint. The specimen from Sikhim, (*Ix. rufigenis*, Hume) which I now have, the rufous supercilium is only indicated posteriorly." This last title was given to the Sikhim bird by Mr. A. O. Hume in STRAY FEATHERS, Vol. V., p. 108. Mr. Blanford has now followed up his letter by sending me two specimens from Mr. Mandelli's collection of this Darjeeling form, and on comparison I found that it is quite distinct from *plumbeiceps*. This last has the head of a decided ash grey colour, and the feathers are more lengthened behind, so as to give a subcrested appearance; bill shorter and deeper; legs stouter, altogether a larger bird. In one specimen from Darjeeling, there is an extension shewn off the rufous of the ear-coverts round the nape, of which there is not a trace in the Sadiya examples. These are the dimensions of *rufigenis*. Wing, 2·45; tarsus, 0·6; bill at front, 0·47.

"The wings run about equal. This genus presents us with an interesting example of modification of plumage in areas that are in a great measure separated now physically. We appear to have five forms:—

1. *Staphidea castaneiceps*, Moore, (1854). Garo, Khási and Naga Hills.
2. *Staphidea striatus*, Blyth, (1859). Tenasserim.
3. *Staphidea rufigenis*, Hume. Sikhim Hills.
4. *Staphidea plumbeiceps*, Godwin-Austen. Sadiya, Eastern Assam.
5. *Staphidea torqueola*, Swinhoe. W. China."—*God.-Aust.*, *J. A. S. B.*, XLVII., pt II., 20, 1878.

[To this list we must add the perfectly distinct *S.* or *I. humilis*, Hume, from the summit of Mooleyit, described, S. F., V., 106.—Ed., S. F.]

Scops minutus, *W. V. Legge.*

"At Trincomalie, in July 1875, I obtained a young bird belonging to a small species of Scops Owl unknown to me. I kept it some little time, and it then died. In May of the following year, while staying with Mr. Bligh, of Cotton Estate, Haputale, I met with a skin of an adult bird, which he had caught in the chimney of his bungalow at Kotmalie, and which I recognized as belonging to the same species as my young bird. Its small size and dark plumage prevented my identifying it with any Scops Owl, described in Mr. Sharpe's Catalogue, and through the kindness of Mr. Bligh I was enabled to send it home to the British Museum. It has now been presented to the national collection by that gentleman.

"Messrs. Whyte & Co., of Kandy, have just sent home to Mr. Sharpe, on loan, a second example, killed in one of the coffee-districts near Kandy. On our comparing the series thus obtained with the Scops Owl in the national collection, this species turns out to be new, being distinguished from other Indian members of the genus by its small size and dark colour. Messrs. Whyte & Co. state they have received once before an example of this Owl. I propose to describe this interesting little addition to the Avifauna of Ceylon under the name of *Scops minutus*, it appearing to be the smallest Scops Owl yet discovered.

"*Description.—Male.*—Length to front of cere (from skin), 6·0; culmen, 0·55; wing, 4·85; tail, 2·1; tarsus, 0·8; outer anterior toe, 0·7; its claw straight, 0·4; height of bill at cere, 0·25.

"Iris yellow; bill olivaceous brown; cere greenish; feet fleshy brown.

"Above, the general hue is dark brown; the feathers of the head, back, rump, scapulars, tertials, and wing-coverts crossed at the centre with transverse spots of ochraceous, spotted finely, and closely vermiculated on the rest of their surfaces with grey and ochraceous grey, surrounding transverse irregular markings of blackish; the feathers of the hind neck are crossed with bold wavy markings of whitish, and margined with rufescent buff; the outer scapulars are white externally, with blackish terminal spots and oblique central bars of the same edged with rufous; the primary and outer secondary coverts have their dark markings mingled with rufous patches and set off with white spots near the tips of the outer webs; primaries and secondaries brownish rufous, mottled with blackish brown, and the inner webs banded broadly with the same; the outer webs of the first five primaries crossed with five white blackish-margined bars; the tip paler than the rest of the feather, and mottled with dark brown; tail brownish, washed with rufous on some of the feathers near the base, mottled with blackish brown, and crossed with five or six bars of buff-white with black edges; ear tufts concolorous with the head, and rufous at the base of the feathers.

"Loreal plumes black, with white bases; facial disc grey, pencilled with blackish; ruff pale rufous, the feathers edged and centred with dark brown; chin whitish; foreneck and under surface, with the flanks, closely stippled with iron-grey on a white ground; the feathers with broadish central stripes of blackish, and crossed on their concealed portions with fine wavy transverse black marks; on the lower parts the stippling is more open, the under tail-coverts being chiefly white, with the markings confined to the tips; legs rufescent, with wavy brown transverse marks; under wing-coverts whitish, shaded with rufescent, and crossed with irregular markings of brown.

"The example sent home by Messrs. Whyte & Co., of Kandy, differs in the bolder nature of the transverse white spottings on the upper surface, and in the blackish markings taking the form of distinct shaft lines; the ruff is more conspicuously edged, and is of a deeper buff than in the Museum specimen; the under surface is not so closely stippled, and does not present the same "pepper-and-salt" appearance, the markings taking the form of vermiculations, and the centre stripes being very bold.

"This little Owl comes nearer to *Scops malayanus* than any other Indian member of the genus, but differs from it in its

smaller size and in the darker upper parts, and closely stippled under surface.

"In its young plumage, it is rufous on the entire upper surface, and the breast is whiter than in the adult.

"*Habitat.*—Northern, Western, and Central Provinces of Ceylon, probably the whole island.

"Type in British Museum.

"*Locality.*—Kotmalie, Central Provinces, Ceylon."—*A. & M. N. H., February* 1878, p. 174.

Abrornis flavogularis, *God.-Aust.*

"Above, ash-grey, purer grey on rump, rather darker on the head; wings pale umber-brown; tail ash-brown; the two outer feathers white on the inner web, the next with a narrow edging of white; lores white; ear-coverts white and grey; chin pure yellow, fading on throat; breast, nape, flanks and thighs greyish white, whitest on the breast; a very faint yellow tinge on the abdomen; under tail-coverts white; a small patch of yellow on inner shoulder of the wing; bill dark above, buff below. Wing, 1·84; tail, 1·8; tarsus, 0·67; bill at front, 0·3.

"*Habitat*—Sadiya, (Mr. Ogle). This species is nearest to *A. xanthoschistus*, having the same coloration of the head and form of the bill; it is distinguished from all other species by its entirely ashy upper surface."—*Pr. A. S. B., April* 1878, 108.

Batrachostomus javensis, *Horsfield* apud *God.-Aust.*

"This specimen belongs to the Indian Museum, Calcutta, where I found it among some skins that had been sent down by the late lamented Captain John Butler from the Nágá Hills, and I was, by the kind permission of the trustees, allowed to bring it to England. It is a most interesting specimen in the rufous phase of plumage, but unfortunately the sex is not marked. It agrees with a specimen of *B. javensis* female in the collection of Lord Tweeddale, and the description of the species, as given in P. Z. S., 1877, p. 435, and the dimensions do not differ materially. I give a description of the Nágá Hill bird, interesting as being found so far to the northward.

"Entire plumage rich chestnut brown, a few white feathers at the base of the upper mandible tipped rufous and barred

with black; white on chin and throat; some of the feathers on the latter crossed by a V-shaped dark line, but they only extend to the upper breast, this being covered by feathers having large rounded white centres, bounded on the terminal margin by a narrow dark line and fringed with chestnut; towards the abdomen and flanks the white marks become narrow and lengthened. The wing is unspotted, but conspicuous white feathers margined with black are mingled with the scapulars, and there is a well-marked nuchal collar, each feather crossed by a narrow black line edged terminally by another; there is a slight mottling of dull black on the primaries and secondaries and lower back; the tail is similarly mottled and crossed by seven pale clear rufous bands; the outer penultimate tail feather has five distinct white bars on the outer web, the very short outermost feather has a terminal whitish spot. Wing, 5·25; tail, 5·5; tarsus, 0·6; bill at front, 0·6; breadth at gape, 1·05; mid-toe and claw, 0·75.

"The long frontal plumes are black, rufous at the base.

"This bird is, I think, nearest to *B. javensis*, *B. affinis* apparently not having any white in front of the eye.

"On my submitting this paper and the specimen to Lord Tweeddale he thus wrote to me: "This Nágá Hill example of the genus *Batrachostomus* "without doubt belongs to the *B. javensis* (Horsf. ex Java). I have critically compared the two and cannot detect any difference. It may turn out to be Mr. Hume's *B. castaneus*, in which case *B. hodgsoni* will become a synonym of *B. javensis*. It is a large form of *B. affinis*, but the white on the throat seems to extend higher up, as it does in the Javan species, and in *B. cornutus* of Sumatra and Borneo." Lord Tweeddale does not concur with me regarding the white mark in front of the eye, and says, "it is just as strongly marked in my examples of *B. affinis*."—*God.-Aust.*, *J. A. S. B.*, XLVII, *pt.* II., 13, 1868.

[This description does not by any means correspond well with the specimens which I possess of *B. castaneus*, which I assume to be the rufous stage of *B. hodgsoni*, though this is still an open question. Not one of my specimens, for instance, has any *trace* even of the white bars referred to on the penultimate tail feathers. Still so little is as yet known of the changes of plumage in these *Batrachostomi* that, for the present, until I can examine the specimen from Assam, I cannot assert that *B. javanensis* may not be the same as *B. castaneus*. The latter is quite distinct from both *affinis* and *stellatus*, (*javanensis apud* Bly. *nec.* Horsf.), but it may be identical with true *javanensis*, of which I have no specimens.—Ed., S. F.]

Notes.

My friend Mr. Sharpe adopts, in regard to several species included in his third Volume, names which appear to me to be indefensible from his stand point as *par excellence* a British Ornithologist.

For instance, at page 146, he designates the Chough, Graculus graculus. This is in direct contravention of rule 13 of the Brit. Assoc. Code. Surely he who so ably presides over the British Ornithological collection should not set an example of transgressing that Code!

In this particular case too no necessity for it exists.

For this genus three generic names only appear to have been proposed—*Coracia*, Brisson, 1760; *Graculus*, Koch, 1816; and *Fregilus*, Cuvier, 1817.

Brisson's generic name, though available under rule, must, I admit, be rejected as too close to *Coracias*, Linnæus, which has by rule precedence, only such genera of Brisson being allowed as are supplemental to, and do not interfere with, those of Linnæus.

We, therefore, fall back up upon *Graculus*, the next oldest* name. No doubt this was also a Linnæan genus, but as Mr. Sharpe points out one antecedent to the twelfth edition of the Syst. Nat., and *not* retained in this latter, and, therefore, according to the Code null and void. The Code may be wrong, but so long as it is a Code we English are bound to abide by it, under penalty of introducing that abomination of confusion that hangs like a fog over the nomenclature of Codeless writers.

We have only then to fix the earliest specific name. No doubt *graculus*, Linn., is the earliest (by one page), but that is inadmissible under the Code, we having accepted it as the generic name.

The next name is another of Linnæus', *viz.* "*eremita*", S.N.I. 159. Badly as the species is described under this name, the "rostro pedibusque rubris," and the references given, leave no reasonable doubt that the bird thus named was the Chough, and it seems to me to follow that this latter should stand as

Graculus eremitus (*Lin.*)

In December last Captain O'Moore Creagh shot a fine male Merganser or Goosander (*Mergus castor*) near Ajmere. This species is of course a mere straggler to these parts.

* I do not consider the *Chough*, and Alpine *Chough* congeneric, but even if they were, as far as I can make out, Koch's name was published earlier than Vieillot's *Pyrrhocorax*, though both date from 1816.

NOT LONG AGO my friend, Mr. Chill, kindly sent me two specimens in nearly full breeding plumage of *Lobipes hyperboreus*, shot by himself on the 2nd May 1877, at the Sooltanpoor Salt Works. This was probably on the birds' northern migration. It will be remembered that Mr. Adam got specimens, (S. F., II., 338) at the Sambhur Lake (another salt source) at the close of September, when the birds were doubtless on their return journey to the sea coast. Except at times of passage they are never met with inland in India. I have now received numerous specimens from Kurrachee, the Gulf of Oman, and the Persian Gulf, and they occur also off the west coast of the peninsula though sparingly all the way to Ceylon and up the east coast to Madras, where my friend, Dr. Ludovic Stewart, obtained the first specimen, and where I have since found that, at times during the old season, they are almost common in the bazar.

CAPTAIN BUTLER writes from Kurrachee:—

"Calling on Colonel Renney here, I saw three beautiful living specimens of *Myiophoneus horsfieldi*, which he informed me that he had obtained, when quite young, at Poorbunder," (in Kattiawar, E. Long. 69° 50', and N. Lat. 21° 37'.) "He told me that several pairs breed in the cliffs there early in the rains, and that the people regularly take the young, which they sell for four annas or so to the residents, descending the cliffs by rope ladders."

This is the most westerly locality from which this species has been as yet *recorded*. *See also* S. F., III., 469.

Later again Captain Butler informs me that he has received a nest and eggs of this species, taken for him in these cliffs by a friend.

EMBERIZA BUCHANANI, *Bly.*, J. A. S. B., XIII., 957, founded on one of Buchanan Hamilton's drawings, has been generally identified with *E. hortulana*, Lin., even in recent works like Mr. Dresser's.

This identification depends, I believe, mainly on a foot note of Blyth's to J. A. S. B., XVIII., 811, "*E. buchanani*, nobis=*E. hortulana*, (L)." Now I possess Blyth's own copy of the J. A. S. B., sold to me by Jerdon when he was leaving India, and in this he has written in his own hand writing opposite the foot note, "No!" and as a matter of fact this identification is quite wrong. *Hortulana* does not occur in India, while *huttoni*, which is common in Rajpootana and Central India, was the species figured by Buch., Ham., and described by Blyth *loc cit*

as *buchanani*, which name must take precedence. The description "differs from *hortulana* in having the head, neck, and streak descending from the lower mandible ash grey instead of dull green," is quite sufficient to fix the species beyond possibility of doubt.

I do not know on what grounds Moore and Horsfield (Cat. B. Mus., E. I. C., II., 484) identified Hamilton's drawings with *hortulana*, from which it differs in colour, while it altogether agrees with *huttoni*; but the identification is certainly wrong, and I may add that *hortulana* certainly does *not* occur in any of those parts of India to which Hamilton's investigations extended, (its Persian form, *E. shah*, *Bp.*, *may* extend to Khelat), while *huttoni does*.

On a previous occasion (S. F., III., 313,) I fully described two specimens of a *Baza*, one from Tenasserim, the other from native Sikhim, which I doubtfully identified with *B. sumatrensis*, Lafres.

It was a large bird. Wing in the male, 13·1; in the female, 13·75; much larger than the dimensions usually assigned to *sumatrensis*, and with a conspicuous central throat stripe, in this respect resembling *magnirostris*, and I proposed for it, if distinct, the name of *incognita*.

I have now to record another species of *Baza* shot in October in the Wynaad—a young bird, obviously of quite a distinct species to my *incognita*, which I am disposed to identify with Mr. Legge's species *Baza ceylonensis*, of which description and dimensions have already been given (S. F., IV., 247.)

This present specimen measures in the skin :—

Length, 17·3; wing, 11·95; tail, 7·9; tarsus, 1·5; bill from gape, 1·3; culmen from edge of cere to point, 1·03.

The bird was a male, and these dimensions tally very well with Mr. Legge's.

The entire bill, cere, and claws appear to have been blackish; the legs and feet yellow; the tarsus feathered in front to within 0·62 of foot.

The plumage is, however, in many respects very different to what Mr. Legge describes.

The forehead, a very broad stripe from the forehead over the eye and ear-coverts, cheeks, chin, throat and breast, white, with a faint creamy tinge.

The feathers of the forehead and some of those of the cheeks and superciliary band with brown shafts, and the central feathers of the chin and throat also with a dark shaft, as if

indicating where, in an older bird, a central throat stripe *would* be; ear-coverts pale rufous brown; all the feathers of the posterior portion of the forehead, crown, occiput, and nape deep brown, more or less patched or suffused on many feathers with pale rufous, and all very broadly margined with white; the crest jet black, broadly tipped with white; the longest feathers 2·8 in length.

Interscapulary region and scapulars brown; the feathers, with one or two very broad inconspicuous darker brown transverse bands, and all narrowly margined at the tips with pale fulvescent or fulvous white; rump, lower back, and upper tail-coverts a rather paler brown; all the feathers narrowly tipped with white, and, as a rule, darkest just immediately behind this tipping.

Tail earthy brown, narrowly tipped with white, with one very broad subterminal band nearly reaching to the white tipping; two others higher up, and a third more or less imperfect one concealed by the upper tail-coverts; primaries and secondaries much the same color as the tail, and banded on both webs with dark brown like the tail, and like it white tipped, but on the inner webs the outer portions of the interspaces above the emarginations are more or less pure white.

Lesser coverts, winglet, and primary greater coverts deep brown, the former narrowly tipped with white; median primary and median and greater secondary and tertiary coverts, and tertiaries a light rufescent or fawny brown, conspicuously tipped with white, and some of them with more or less of their basal portions white.

Lower breast, abdomen, sides, flanks, and axillaries white; each feather with one or two broad, more or less imperfect, pale rufous brown transverse bars; a trace of the same on some of the tibial plumes; rest of tibial plumes, feathers about and immediately above the vent, lower tail-coverts and wing-lining cream color, with a slight fawny tinge here and there and unbarred; the lower surface of the quills and tail strongly barred black and pale grey, more or less of the latter, becoming pure white towards the bases of the feathers.

As will be seen, this specimen does not, so far as plumage is concerned, agree over well with Mr Legge's description but looking to the locality where it was obtained, less than 500 miles north-west of the central hills of Ceylon, and in a hilly region which may be said to be a continuation of these latter, I can scarcely doubt but that it belongs to the same species.

427.—Actinodura egertoni, *Gould.*

In his Paper on the Birds of the Khasia and North Cachar Hills, (J. A. S. B., XXXIX, Pt. II., 105, 1870) Major Godwin-Austen referred to an *Actinodura*, near *egertoni*, which he said differed "in the crown and nape being ashy brown; shoulder of wing and coverts olivaceous brown; tail pale rufous brown; *all* the feathers distinctly barred; beneath pale rufescent; no ashy tinge, and pale rufous on the neck and breast; the principal point of difference is in the centre tail feathers and its rather smaller size. Wing, 3·2; tail, 4·5."

Later in his list of Birds of the Dafla Hills, *op. cit.* XLV., Pt. II., 76, 1876, he remarks:—

"I mentioned the points in which the Khasia Bird differed, and I now see that not the least important of these is the distinct difference in the colour of the shoulder of the wing, the back and rump, which is an ochrey olivaceous, but in the Dafla specimen red brown, as given by Jerdon for the same parts of true *egertoni*. All the birds (I have a large series from the Hill ranges south of the Brahmaputra) are identical, and so distinct from the *egertoni* of the Eastern Himalaya that they must receive a specific title, which I propose should be *A. khasiana*."

I must wholly dissent from this view. I also have large series from both the Khasia Hills, and from Sikhim and Nepal, and I must distinctly assert that there is no constant difference in size, in the colour of the head, in the barring of the tail, or in the colour of the chin and throat. The only constant difference is the more rufous tinge of back, wings, tail, breast, and abdomen, in Sikhim and Nepal specimens, *very* pronounced in *some* specimens, slight in others, and barely recognizable in a few. Considering the deeper and more rufous character of the plumage of *all* such birds from Sikhim, *e.g.* in *Pomatorhinus ruficollis*, *Trochalopteron rufogularis*, &c., &c., this difference in coloration so slight in *some* specimens, although generally apparent enough, will certainly not, in my opinion, justify specific separation.

Half the Passeres in Persia and Beloochistan, for instance, would have to be constituted distinct species on similar grounds, running as they do so constantly paler than their European representatives.

A comparison of a specimen of

Layardia rubiginosa, *God-Aust.*

P. Z. S., 1874, 47; J. A. S. B., XLIII., 164, pl. V., S. F., III., 397, Descr.

from the Munipore Valley, with others of

PYCTORHIS LONGIROSTRIS, *Hodgs.*

Moore, P. Z. S., 1854, 104.
Moore and *Horsf.*, Cat. Mus. E. I. C., 408, No. 666, 1854.
Jerd., B. of In., No. 386, II., 16, 1863.

from Cachar, Gowhatti at foot of the Khasia Hills, the Bhotan Doars, and the Sikhim Terai, has proved that the two are identical. Major Godwin-Austen's plate led me to suspect this from the first, but his assignment of the species to *Layardia* staggered me, and I thought it possible that the artist might have misdrawn the bill, since it was impossible to believe that any ornithologist would assign a bird with a bill, such as *Pyctorhis longirostris* has, and such as the plate above referred to represents, to the genus *Layardia*.

Both *Layardia subrufa* and *rufescens* have true Malacocercine bills, and the feathers of the head belonging to the same type. *Pyctorhis longirostris*, beyond belonging to the same huge family, has nothing in common with *Layardia*, except the rufous tint, and even this is of a wholly different character.

The two descriptions tally so marvellously that it is difficult to understand how this should have been overlooked—the only difference being that, (the colour of the under surface varying a good deal, as such birds commonly do in depth of coloring) Moore described one with the lower surface rather whiter, Austen one with the lower parts rather more rufescent.

The dimensions differ somewhat it is true, but not materially, and it may be useful to contrast those of Moore and Austen with those of specimens now before me.

		Length.	Wing.	Tail.	Tarsus.	Bill at front.
Moore	(Nepal Terai) ...	8·25†	2·75	3·25	1·0	0·62
Austen	(Munipur Valley) ...	9·5	3·0	4·8	1·16*	0·62
Hume	(Cachar) ...	8·2†	2·9	4·5	1·03	0·7
"	(Munipur Valley) ...	8·5†	3·02	4·6	1·08	0·75
"	(Gowhatti) ...	7·85†	2·9	3·75	1·16	0·65
"	(Sikhim Terai) ...	8·0†	3·1	4·3	1·08	0·7
"	(" ") ...	8·6†	3·0	4·7	1·17	0·8
"	(Bhootan Doars) ...	7·25†	2·8	4·0	1·2	0·71
"	(" ") ...	7·9†	2·9	4·0	1·15	0·73

Some specimens agree in plumage more exactly with Moore's, others with Austen's description; especially some *do* show blackish shafts to the frontal feathers, while others do not.

As to the true generic position of this species, I do not hesitate to confirm its location in *Pyctorhis*. The wings, tail, feet, and what I hold to be of considerable importance, the character

* Misprinted 1·6, J. A. S. B., *loc. cit.*

† In the skin; Major Austen's measurement of length is probably either in the flesh, or *allowing* for the shortening of the neck in dry skins.

and texture of the plumage, are all identical with those of *P. sinensis* and *P. griseigularis*, Hume (*altirostris*, Jerd. *apud* God-Aust., nec *Jerd.*) ; and though the bill is much more elongated, still if held side by side, it will be seen that the bills of *sinensis* and *longirostris* present precisely the same characters, the same curved culmen and commissure, the same nares, the same style of compression, and though it might perhaps be justifiable to separate *longirostris* under a separate sub-genus, it is certainly closer to *Pyctorhis* than to any other genus with which I am acquainted.*

421.—Trochalopteron rufogulare, *Gould.*

The great variation observable in the plumage of this species has never, I believe, been noticed.

In some specimens only the point of the chin is rufous ; the rest of the chin and throat is pure white ; in others the whole of these parts is rufous ; every intermediate amount of rufous is met with, and the rufous varies from rich ferruginous red to pale ferruginous buff.

In some specimens the whole of cheeks, ear-coverts, and feathers behind these are entirely black ; in some the black is mottled with white ; in some with olive ; in some the ear-coverts are rufous like the chin, and these variations are combined in a variety of ways.

The greater part of the lores are white in some specimens, buffy or dingy white in others ; bright rufous buff in others. Occasionally this patch is continued only a little tinged with olive as a broad supercilium over the eyes.

The breast varies from deep olive brown to pale grey ; sometimes it is densely studded with large black spots ; sometimes the black is reduced to a few straggling specs.

Sometimes, indeed most generally, the whole cap is black, but in some specimens it is rich olive like the back, only blotched with black here and there.

The colour of the upper surface varies from an extremely rich rufous olive brown to a comparatively pale pure olive.

Every part of the plumage varies more or less.

The variation in colour is to a certain extent local.

Thus the only specimens that I have seen with quite the entire throat, right down on to the breast, rufous, are from the Khasia Hills and other places in Assam.

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* Since this was in type, Major Austen has himself admitted the identity of his *Layardia rubiginosa* and *Pyctorhis longirostris*, but he endeavours to maintain that the bird is a *Layardia*, a totally untenable position.

The deepest colored and most spotted birds are all from Sikhim and Nepal. The palest from the hills to the north of Mussouri, and the upper parts of the Bhagiruttee Valley.

I have not yet met with one Sikhim or Eastern Nepal specimen, with really rufous ear-coverts, but these are common amongst Kumaon and Gurhwal birds, and seem to be universal in Khasia Hill specimens.

At the same time these different forms are all so completely united by intermediate ones, that it is quite impossible to make a second species out of any of them.

As far as I can make out, Mr. Gray is correct in assigning names to our Bush Quails differently to Jerdon.

There are two clearly distinct species—the Jungle Bush Quail and the Rock Bush Quail. It may be useful to republish here from the Rough Draft of Nests and Eggs, (now out of print), the main points of distinction between these two species.

"The adults of both sexes (and I believe most of the young also) may be distinguished at a glance by two characters.

"1*st*.—The *bright chestnut* hue of the chin and throat of the Jungle Bush Quail, which contrasts equally strongly with the white black-barred lower surface of the male and the dull rufous of the same parts in the female. In the Rock Bush Quail, the chin and throat are dull rufous, the chin often being, especially in the females, whitish, and in these latter the throat is unicolorous with the breast. It is difficult to represent colors accurately in words, but bright chestnut and dull rufous (*slightly* suffused in many specimens with a grey shade) are so different that this coloration of chin and throat ought alone to suffice to distinguish adults, at any rate, of the two species.

"2*nd*.—The long, well-marked yellowish white superciliary stripe which, in the Jungle Bush Quail, begins in males at the nostrils, and in females a little further back, and in both runs over the eyes and ear-coverts right down to the nape, averaging in males 1·15 and in females 0·9 in length. In the Rock Bush Quail the supercilium is by no means well marked, very narrow, and only just extends to the ear-coverts; in many specimens it is scarcely traceable. Moreover, the supercilium, such as it is, in the Rock Bush Quail is *immediately* above the eye and ear-coverts, whereas in the Jungle Bush Quail the long supercilium is separated from both eyes and ear-coverts by a narrow band of the same rich chestnut as the throat.

"Besides these differences there is in the males of the Jungle Bush Quail a well-marked yellowish white rictal stripe running under the eye and ear-coverts, while in the Rock Bush Quail there is only a faint trace of a pale line.

"The black bars on the lower surface of the Jungle Bush Quail are far more regular and better marked than those of the Rock Bush Quail. Indeed, in this latter species, it is only on the neck and breast that they are at all regular and continuous, while in the Jungle Bush Quail they are regular and continuous almost to the vent.

"In the females of the Jungle Bush Quail there is only a trace of the rictal stripe. The young males resemble the females, but have the rictal stripe well marked. At first the breast and abdomen is the same dull rufous, faintly suffused with grey as in the adult female; then the tips of some of the feathers become yellowish, then a dusky line appears above this tip, then the tip becomes whiter, the line becomes a dark bar, and above this a pale bar bounded by a dark line begins to show; lastly, the tips and bars become nearly pure white and blackish brown, the rufous disappears entirely, except about the vent, thigh-coverts, and lower tail-coverts. These parts, I may note, are always *rufous* in the Jungle Bush Quail, and a kind of pale dingy sandy hue in the Rock Bush Quail. I have also remarked that in this latter species there are almost invariably more or less distinct bars on the lower tail-coverts, whereas in the former species these are (in all the specimens I have seen) entirely without any trace of bars."

I may add that in one stage of the quite young Jungle Bush Quail the feathers of the cheeks, of the throat, sides of the breast and interscapulary region are very conspicuously white shafted—a feature which I have failed to observe in any of my specimens of the Rock Bush Quail.

Again, as a general rule, the tertiaries and scapulars in the Jungle Bush Quail are very conspicuously blotched with black, and also usually have conspicuous yellowish white to reddish buff shaft stripes, both of which are almost entirely wanting or at most are but feebly reproduced in the Rock Bush Quail. But too much stress must not be laid upon this, because it only really suffices to separate nearly adult up to middle-aged birds. Since in very old specimens of the Jungle Bush Quail these blotches almost entirely disappear, while in quite young birds of the Rock Bush Quail these blotches are pretty conspicuous, though not nearly so much so as in the corresponding stage of the Jungle Bush Quail.

Both these species have been figured by Sykes, Tr. Z. S., Vol. II., pl. 2 and 3. They are not well figured, quite the contrary, but still they are *recognizable*, and Jerdon was quite right in assigning *Coturnix pentah*, Sykes, to the Jungle Bush Quail, and *Coturnix argoondah*, Sykes, to the Rock Bush Quail, but when it came to Latham's name, Jerdon was I think in error.

Carefully comparing Latham's description of his Asiatic Partridge, (*Perdix asiaticus,*) especially the passage "through the eye and behind brown, beneath it a patch of fringed whitish feathers, rufous in the middle," there can be no doubt I think that this name of Latham's *asiatica* was applied to the Jungle Bush Quail.

On the other hand Latham's name *cambaiensis* is either so bad a description as to be worthy only of rejection, or else applies to some non-Indian species.

It is true that Latham says, "inhabits India about Guzerat, a specimen in the British museum;" but his description, which is as follows, will apply to no Indian bird; it may apply to some Malayan bird. Mr. Gray, Hand List No. 9715, records a specimen from Malacca, but it certainly does not apply to either of our Indian species, and so far as they are concerned must be rejected.

The description runs :—

"Length, 6 inches; bill short, stout, pale, tipped dusky; body yellowish, rufous above, paler beneath, clouded with a deeper color, inclining to brown; wing-coverts tipped with a paler rufous, giving the appearance of two bands across the wings; legs yellow, hind toe without a claw."

Now neither of our species at any age exhibit an appearance of bands across the wing, and in neither is the hind toe destitute of a claw, nor indeed is any part of the description reasonably applicable.

It is quite impossible for me to work out the correct synonymy of these species, but I can say for certain that *rubicola*, Hodgson, is the Jungle Bush Quail. What *rubiginosa*, G. R. Gray, and *rubiginosa*, Val., or again *Cryptonyx rufus* of Temminck may be, I am unable to determine not having the works in which these species are described at hand to refer to.

Mr. Gould, B. of A., XV., pl. 12 and 13, gives us some beautiful figures of what he supposes to be the two species *asiatica*, the Jungle Bush Quail, and *argoondah*, the Rock Bush Quail; but all his figures *really* represent one species only, *viz.*, the Jungle Bush Quail, and what he supposes to be an adult female of *argoondah*, is merely the young of the Jungle Bush Quail before the chestnut of the throat has shown out.

So far as I can make out, the names of the birds should stand as follows :—

No. 826 of *Jerdon*. The Jungle Bush Quail.

Perdicula asiatica, *Latham*, Ind. Orn. II., 649, 1790; Gen. Syn. Sup., II., 278; Gen. Hist., VIII., 281, 1823.
pentah, *Sykes*. Tr. Z. S., II., 19, pl. 3, 1835.

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rubicola, *Hodgs.* M. S. S. *Unde. Pub?*
rubiginosa, *G. R. Gray. Unde?*
asiatica *et* argoondah, *Gould*, (nec. *Sykes*) B. of As., pt. XV., pl. 12, 13, 1863.
cambaiensis, *Jerdon* (nec. *Lath.*) B. of Ind., II., pt. 2, 581, 1864.

No. 827 *of Jerdon.* The Rock Bush Quail.

Perdicula argoondah, *Sykes*, Tr. Z. S., II., 17, pl. 2, 1835.

asiatica, *Jerdon* (nec. *Lath.*) B. of Ind., II., pt. 2, 583, 1864.

As I said before when dealing with these species in Nests and Eggs, I am quite unable to define accurately the range of the two species; the Jungle Bush Quail must be much the most common as we have just sixty specimens of it in our museum, and only twenty-five of the other.

The Jungle Bush Quail we have from near Simla; the Dhoon; Umballa; Mount Aboo; Anadra, at the foot of Aboo; Etawah; Mirzapore; Seoni, Central Provinces; Nursingpore; Raipoor; Valley of the Tapti, West Khandeish; Mahableshwar; Kelsi, Bankok, and other localities in the Southern Kon-Kan; Madras; and Pothanore.

The Rock Bush Quail we have from Delhi, Goorgaon, Aboo, Jodhpore, Sambhur, Beaur, Ajmeer, Etawah, Jhansi, Deesa, Kutch, Bassein and Coimbatoor.

Mr. D. G. Elliot has recently published (P. Z. S., 1878, p. 234) an admirable monograph of the *Pteroclidæ* similar to others, by which he has, from time to time, so materially contributed to the progress of ornithology.

He gives a key to all the known species, 16 in number, included in the two genera *Pterocles* and *Syrrhaptes*, of which the latter only numbers two species.

Of these 16 species, exactly one-half, *viz.*, seven *Pterocles* and one *Syrrhaptes*, occur within our limits, and a key to the seven former species, based on Mr. Elliot's more general one, may be useful to some of my readers.

Key to the Indian species of Pterocles.

A. Without pectoral band.
  a. Stripe on each side of forehead, from nostril to above the eye, chin and centre of throat, black..... 1. *Pt. coronatus.*
  b. Lores and band encircling back of head pearly grey; cheeks, ear-coverts,

and throat orange yellow; centre of abdomen black..... 2. *Pt. senegalus.*

B. With pectoral band.

a. Without black bar on forehead.

*a*¹. Median rectrices not lengthened much beyond the rest. Upper part of throat and sides of neck rufous; lower portion of throat black; band on lower part of breast, abdomen, and flanks black ... 3. *Pt. arenarius.*

*b*¹. Median rectrices greatly lengthened beyond the rest.

*a*². Throat yellow; black band across breast; abdomen and flanks chestnut ..... 4. *Pt. exustus.*

*b*². Throat and stripe behind the eye black; sides of throat rufous; centre of breast chestnut, bordered above and below with black; rest of under parts white..... 5. *Pt. alchata.*

b. With black bar across forehead.

*a*¹. Breast uniform greenish buff.

*a*². Lower part of breast bordered with a chestnut band, succeeded by a white one; rest of underparts yellowish white, barred narrowly with black; wing-coverts with two black bands, margined on the upper side only with white..... 6. *Pt. fasciatus.*

*b*¹. Throat pale buff; upper part of breast buff, crossed with numerous narrow black bars; middle of breast uniform buff, crossed in centre by a narrow black bar, and another of the same hue on its lower edge; rest of underparts yellowish white, barred narrowly with black.....7. *Pt. lichtensteini.*

The *Syrrhaptes*, of which we have only one species (*S. tibetanus*) can be at once recognized by its toes densely and completely feathered above.

As regards our Indian species I will add a few remarks as to distribution in this country, as I have more information on this subject now than was available to Mr. Elliot.

1. *P. coronatus*.—Though comparatively rare, this species is known to occur throughout the more desert and hilly portions of Sindh, west of the Indus. It has once been killed in the Dehra Ghazee Khan district. It is believed not to breed within our limits. It is far from uncommon in the Cutchee of Khelat.

2. *P. senegalus*—Occurs throughout India west of the 73° E. Long., as far north as the 33° N. Lat. It is extremely abundant in, and is a permanent resident of, the semi-desert portions of Sindh, where it breeds; elsewhere within the limits above referred to it is only a cold season visitant, and in most places rare or a mere straggler.

3. *P. arenarius*.—This species is merely a cold season visitant to this Empire, and does not breed within its limits. It is abundant (of course only in open comparatively waste country) throughout Sindh, the Punjaub, and almost the whole of Rajpootana north and west, of the Aravallis. Throughout the western and central portions of the N.-W. Provinces and the western districts of Oudh it is an occasional straggler to similar localities, and the same may be said in regard to its appearance in Gwalior, Indore, Rajpootana, south of the Aravallis, Khandeish, Northern Guzerat, Kattiawar and Cutch, except in the immediate neighbourhood of the Runn where it at times swarms.

4. *P. exustus*.—A permanent resident, widely spread throughout the country, and breeding in most places; excluding the extreme southern portions of the continent, Malabar, Lower Bengal, Assam and Burmah, it occurs almost everywhere in the plains, where the country is open and dry. As a straggler it has occurred, as recorded by Dr. King, even close to Calcutta, but as a rule it absolutely avoids damp soils and densely-wooded or hilly tracts, and is most abundant in sparsely cultivated, and unirrigated, but yet not wholly deserts tracts.

5. *P. alchata*.—A cold weather visitant merely, and as such abundant only in the Trans-Indus, portions of the Punjaub and Northern Sindh, and in Western Cashmere, but occurring as a straggler in suitable localities, from time to time, almost throughout Sindh, in Western Rajpootana as far east as the Sambhur Lake, and in the Punjaub as far east as near Delhi.

6. *P. fasciatus*.—A permanent resident, breeding freely with us. Occurs throughout India north of the 16° N. Lat., and west of the 85° E. Long., but only on and about the bases and in the neighbourhood of dry low rocky bush-clad or sparingly-wooded hills.

7. *P. lichtensteini*.—A cold weather visitant, in small numbers, to the more western desert and hill portions of Sindh. Since I first shot it in Upper Sindh, several specimens have been sent me from near Sehwan, from the Erie hills, and other localities.

8. *Syrrhaptes tibetanus*.—Only occurs within our limits, on the elevated desert plains of Ladak, but here very numerous in places, and a permanent resident. It is not as Elliot wrongly says near the *salt* lakes, but near the few, small *fresh* water lakes, that are dotted about here and there that it is most abundant.

I shall always be glad to put on record in STRAY FEATHERS notices of the occurrence of any these species outside the limits which my present experience leads me to assign to them.

"THE ASSERTION MADE by Dr. Jerdon, B. of I., 118, that "Mr. Phillips, under the name of *Strix javanica*, mentions it "(*Scelostrix candida*)" as living in long grass, and to be found "in abundance some miles from Hodal," has often puzzled ornithologists in India. In the first place Hodal is entirely outside the area to which *S. candida* appears restricted; in the second place Hodal is impossible as a station for this species; in the third place it certainly does not occur there, where, besides casual visitors like myself, residents have searched for it for years.

Looking into the matter I find that there is not the *smallest grounds* for supposing that *Philipps* (not *Phillips*, as Jerdon gives it) ever refered to *S. candida* at all.

Mr. Philipps' paper was prepared something like LeVaillant's; only in Mr. Philipps' case everything was done in good faith. He did not preserve any specimens, but he recorded descriptions, and to these descriptions Mr. Moore assigned names.

What it comes to then is, that some Owl was very common in the grass about Hodal, and this fact remains unchanged to this day. The grass swarms at times in the cold season with *Asio accipitrinus*, the Short-eared Owl. Of one of these Owls Mr. Philipps recorded a description.

Later in England Mr. Moore considered this description to have been intended for *Strix javanica*. As a matter of fact there can be no doubt that what he described was the Short-eared

Owl, which to this day, as Philipps' says, "may often be put up and chased by Hawks" as I have seen a wild *F. jugger* do near this very place. Considering how the identifications were made, I do not think that any weight can be attached to Philipps' paper, P. Z. S., 1857, 85.

Following Finsch, Mon. Pap., 263, and the Marquis of Tweeddale, Blyth's Birds of Burma, 57, I have in Vol VI, and previous volumes, adopted Wagler's name *melanorhynchus* for our Indian Blossom-breasted Paroquet No. 152 of Jerdon.

On myself examining the question I find that this is entirely wrong.

The question turns upon whether Buffon's Planche Enluminée No. 517, Perruche de Pondichery, represents the Indian or Javanese form.

The leading distinction between these two forms consists in the males of the former having the upper mandible red and the lower mandible blackish or brownish dusky, while in the latter both mandibles are red. Now in my copy of the Planches Enluminées the lower mandible is brownish dusky, not a trace of red about it. Again, referring to his copy of these plates, Schlegel remarks "L'individu de Buffon a la mandibule inférieure foncee."

Moreover, from the name assigned, although the fact is nowhere separately stated, it is evident that the specimen figured, and for the period very *well* figured, was brought from Pondicherry, at which place, as indeed everywhere along the west coast of the Bay of Bengal, specimens of this Parrot are to be constantly met with in cages brought by the native boats, which constantly pass to and fro across the Bay of Bengal from Chittagong and the Burmese coasts.

It does not appear to me that any possible doubt can exist as to the fact that plate 517 of the P. E. represents the Indian species; and I am altogether at a loss to understand how my friend, Dr. Finsch, can assert, *loc cit supra*, that this plate undoubtedly represents the Javan species. Now, on this plate were founded three names:

fasciatus, P. L. S. Müll. Supplement, S. N., 74, 1776.
vibrissa, Bodd., Tabl., P. E., 30, 1783.
pondicerianus, Gm., S. N. I., 325, 1788.

Linnæus did not include this species under a distinct name, though he may have included it in his extremely confused synonymy of one of the species of this group, and Müller's name is therefore the oldest and must stand.

The Javan form will, of course, stand as *alexandri*, Linn., if that name be not, as I am disposed to think it ought to be, rejected altogether—Linnæus' diagnosis being utterly valueless, and our only clue to the species intended being his primary citation from the Amoenitates Acad., in which Odhel, as Dr. Finsch has clearly pointed out, gave a good description of a specimen brought from Java by Osbeck.

The specific synonymy of our Indian species will, therefore, stand somewhat as follows:

152.—Palæornis fasciatus, P. L. S. Müll. Suppl., S. N., 74, 1766.

vibrissa, *Bodd.* Tabl., P. E., 30,1783.
pondicerianus, *Gm.* S. N., I., 325,1788.
borneus, *Wagl.*, Monogr. Psittac., 510,1832, ? nec. *Gm.*
melanorrhynchus, *Wagl.*, ibid. 54, 1832.
mystaceus, *Hodgs.*, Gr. Zool Miscl., 85,1844, *et auct.* nec *Shaw.*
nigrirostris, *Hodgs.*, Ibid.
barbatus, *Bly.* J. A. S. B., XIX, 233, 1850, *et auct.* ? nec. *Gm.**
osbecki, *Horsf.* and *Moore.*, Cat. B. Mus., E. I. C., II., 622, 1856. *et auct.* nec *Lath.*
javanicus, *Jerd.* B. of M., I., 262, 1862, *et auct.* nec. *Osb.* nec. *Forst.* nec. *Gm.*
lathami, *Finsch.*, Mon. Pap., 66,1868.

It is very ungracious to look a gift horse in the mouth, and I feel that we ought to be grateful to Messrs. David and Oustalet for their work on the "Birds of China." At the same time it would not be honest to refrain from expressing a hope that a revised edition may be published at some future period. Great labor has doubtless been bestowed upon the work, and we all know how much Père David has done for Natural History, and no one who has visited the Paris Museum but will be ready to bear testimony to the courtesy and kindness uniformly displayed to all ornithologists by Monsieur Oustalet, but nevertheless the book that they have jointly produced cannot be said to do justice to either the explorations of the former or the erudition of the latter.

I do not speak now of the Atlas, the plates in which are possibly the best (bad as they are) that could be produced in Paris at the price. But the text contains so many errors that

* It is impossible to make certain what Gmelin's var. *barbatus* with its chestnut lores, really was.

I can only suppose that it was prematurely published before the authors had had time to revise it.

The very first page, and the very first species, illustrates the kind of error to which I allude.

That species is *Palæornis derbianus*, of which *Palæornis melanorhynchus*, Wagl., is given as a synonym; but the dimensions show that the true *derbianus* and not *melanorhynchus* is intended, *viz.*, total length, 18 inches; wing, 9·85. The artist professes to have drawn to half scale, and figures a bird less than 16 inches in length, with a wing of 6·5. However he figures the green running up the nape and occiput, which is the case in *derbianus*, and not in *melanorhynchus*; and this, coupled with the figured dimensions given in the text, show that the true *derbianus* is referred to. In *melanorhynchus* (*fasciatus*,) of the Himalayas, Burma, and the Andamans I may mention that 15·5 in length is the absolute maximum; nine out of ten adult males are below 15·0; for the wings 7·0 is the maximum, and nine out of ten males have the wings below 6·75.

Well the text opens by informing us that "this large and beautiful Paroquet, *which is common enough in Nepal and Arrakan*, comes to pass the summer in the wooded valleys of the Upper Yangtze."

It is needless to tell my Indian readers that *melanorhynchus*, Wagl., is not a synonym of *derbianus*, and that *derbianus* has never yet been known to occur either in Nepal, Arrakan, or any other part of the British Indian Empire, but it may be useful to note that independent of the immense difference in size the wing in *melanorhynchus* never exceeding 7·0, and in *derbianus* running to 9·0, or more. The two species are distinguished amongst other points by the green of the back in *derbianus* running up on the nape and occiput, whereas in both sexes of *melanorhynchus*, the nape and occiput are unicolorous with the crown, and again by the breast in *derbianus* being much more of a lavender and much less of a vinaceus rosy than in *melanorhynchus*—the lavender or lilac in *derbianus* moreover extending considerably lower down towards the vent, than does the vinaceous rosy in the other species.

After comparing a tolerably large series of the two forms, I am still doubtful whether *Gyps pallescens*, nobis, and *Gyps indicus*, Scop., should be considered specifically distinct.

The former appears to be the bird of Western and Central India, and it invariably breeds on cliffs, never on trees, though numbers of suitable ones may be growing alongside; the latter is apparently the bird of the moister and more eastern

region. It is extremely common in Calcutta, and occurs throughout Bengal, in the Terai, &c. It always breeds on trees.

Gyps pallescens is altogether a paler bird; it has the entire forehead, crown, and occiput densely clothed with brownish white hair-like feathers, and the nape, and back, and sides of the upper part of the neck completely clothed in white down. The chin and throat are also thinly clothed with hair-like feathers.

In *Gyps indicus* the entire head is quite bare, and there is only a slight dotting of down on the neck.

In *pallescens* the cere is horny bluish white, always very pale, and the face a sort of pale leaden blue, while in *indicus* the cere is nearly black, and the face dusky. The whole plumage of *indicus* is much browner and darker than in *pallescens*. The birds are both much of the same size, individuals of both species, however, varying much. The wings varying from 22 to 25 and upwards, but perhaps the legs and feet of *indicus* are larger, and they are certainly I think blacker.

Another point has to be noted. The young of *pallescens* is a precise miniature of the young of *himalayensis*, but I have met with no corresponding stage in *indicus*. On this point, however, I must not lay too much stress, for I have closely examined thousands of *pallescens*, but comparatively few of *indicus*. I am sending home a fine specimen of *pallescens*, which I shot off its nest at Ajmere this year, and I dare say Mr. Gurney will pronounce his verdict on this moot point.

Mr. Brooks remarks *in epist*:—

"I have a bird here I should like you to have—a skin of the African *Aquila nævioides*, one of Anderson's collections in Damara Land. It will be more useful to you than to me. It is a very typical bird. Did I ever tell you that I saw a number of the North-African Wokhab at Norwich in various plumages, from whitey brown or brownish white like our bird, to uniform brown, but the latter not so dark as a dark Indian Wokhab? It is a distinct bird from ours, though uncommonly close to it. Ours is often finely speckled, something in the *hastata* style, but more minute spots or light tip to feathers. This peculiarity is not observable in the African bird. Again, ours is often a piebald bird, almost, part of the body being very dark and part light, but the other is of uniform tone."

"Again in the whitey brown dress our bird inclines to a yellowish tint, while the African one is more of a ruddy dull whitish brown. Lastly, the dark brown is of a different tone from a Wokhab, more reddish in the brown or a richer brown.

These differences, coupled with the general superior size of the African bird, would lead me to keep them distinct. Gurney, who compared them with me, was of the *same opinion*."

ANORHINUS AUSTENI, *Jerd.* (*Ibis*, 1872, p. 6,) has for long been a bone of contention amongst ornithologists, and Mr. Elliot recently wrote to me that he could make nothing of it.

In Vol. IV., p. 493, I reproduced the little Jerdon said about it, as also Major Godwin-Austen's (who was its discoverer) original description.

At page 60, Vol. V., I stated, on Mr. Blyth's authority, that the bird was no other than *Craniorrhinus corrugatus*, Tem. At p. 117 of the same volume, I described this latter species, and I pointed out that Major Godwin-Austen's description was utterly irreconcilable with what was known of *corrugatus*. In the *Ibis* for 1878, page 206, Major Godwin-Austen takes the matter up, and explains that Mr. Blyth was quite mistaken, and that the head, whatever it was, which he saw, and on which he founded his identification, was not his, Major Austen's *austeni*, the type of which was in the British Museum.

Major Godwin-Austen's conclusion is, (it must be remembered that he had no specimens of *tickelli* to compare) that his *austeni* is only the young of *tickelli*, and he adds: "*Asalu* is not by any means beyond the limits of range of *A. tickelli*, which follows the forest-clad range of mountains into Arrakan and Burma, migrating as certain fruits, on which they feed, come to perfection."

Now I have to remark on this first, that though Major Godwin-Austen may possess information not available to me, *so far as I know*, and to the best of my belief, *tickelli* never occurs anywhere near Arrakan, nor has it been observed any where as yet except in the immediate neighbourhood of the locality where Colonel Tickell first met with it, which is the hilly interior eastern portion of the Amherst district whence we procured two specmens, a male and female, and where many more were seen by Davison and Bingham. I have dealt rather fully with this species, Vol. VI., pp. 103-6, and after comparing my specimens with Major Godwin-Austen's original description, I am disposed to think that Major Austen is in error, and that his bird is quite distinct.

In the first place his bird, which he supposed to be a *young* one, seems too big. It far exceeds the dimensions given by Tickell; it exceeds the dimensions carefully recorded in the

flesh by Davison and Bingham, as will be seen by the following comparison of dimensions :—

Name.	Sex.	Authority for dimensions.	Length.	Expanse.	Tail.	Wing.	Bill from gape.
A. Austeni.	?	God. Aust.	31·0	...	13·0	13·0	4·5
A. Tickelli.	*Female.*	Tickell	26 75	37·0	11·25	12·0	4·57
„	*Male.*	Bingham	29·4	40·0	12·0	12·6	4·9
„	*Female.*	Davison	27 75	38 75	11·5	12·25	4 3

Davison's is a mature female, an old bird; Bingham's is a fully grown, but not mature male. The two differ in plumage, as already described, *loc. cit. sup.*

Now it is not probable that a young bird, such as Major Godwin-Austen supposes *austeni* to be, should be so much larger than our birds, one of which is fully mature and the other (though judging from the casque not fully mature) clearly by the plumage a full grown bird, and not a nestling or very young one.

Then again, while no part of the plumage of our male agrees well with Major Austen's description, there are certain points on which the discrepancy is extremely marked :—

1*st.*—"Throat and sides of neck white."

There is no trace of this in our specimens.

2*nd.*—"Primaries greenish black, tipped and barred with white."

The primaries are blackish brown, but not a bit greenish, and tipped with white in the young male, but there is not a trace of barring.

3*rd.*—"Base of the primaries white."

There is no trace of this in either sex.

If *austeni* belonged to this species, it must be a male, for it has the bill yellowish white, and in the females the bill is blackish horny. Our young male has the head red, like the under parts, only rather browner and darker. If it be supposed that *austeni* is a still younger male than ours, then how comes it that it is so much larger?

On the whole it seems to me that we are scarcely as yet warranted in considering *austeni* to be synonymous with *tickelli;* and that bearing in mind the extreme probability of a nearly-allied representative species occurring in the North Cachar Hills, it will be advisable for the present to retain *austeni* as a distinct species until such time as material for a final conclusion shall be available.

THE OCCURRENCE of *Halcyon chloris*, anywhere on the west coast of India, has not hitherto been recorded. Mr. G. Vidal, of the Bombay Civil Service, has lately sent me several specimens from the Rutnagherry District, and has drawn my atten-

tion to the fact of their occurrence as an extremely exceptional matter. He says :—

"I have only as yet met with this species in one single locality in this district, and that is in a mangrove swamp along the coast at a place called Kelsi, near the north of the Dapuli Taluka, the northernmost one of this District. Even here there seem to be only a few pairs."

This place is about seventy-five miles, almost exactly due south of Bombay.

Mr. Brooks writes :—"Comparing an example of Caprimulgus asiaticus, *Latham*, with the plate in the *Ibis* for 1866, page 75, of Tristram's *C. tamaricis*, I cannot see the slightest difference.

Mr. Tristram says : "In form and size it much resembles *C. asiaticus*, but it is a trifle larger in all its dimensions," &c. The dimensions given, in the original description, are :—

"Long. tota, 9·0 ; alæ, 5·6 ; caudæ, 4·2."

The dimensions of my example are :—

"Long. tota, 9-0 ; alæ, 5·6 ; caudæ, 4·2."

The dimensions given by Jerdon are :—

Length, 9 inches ; extent, 18 ; wing, 5½ to 6 ; tail, 4½.

Blyth says, it is variable as regards size.

We thus have as close a correspondence as could be wished for as regards size, and the coloration of the *Ibis* plate is precisely that of *asiaticus*.

I see no reason why *tamaricis* should not be suppressed, and would direct the attention of those to the subject, who may have specimens of both for comparison."

I agree with Mr. Brooks, and beg to reproduce here what I printed on this subject, six or seven years ago, when writing on *C. asiaticus* :—

"The tarsi are bare, and in both sexes the two exterior lateral tail-feathers and primaries have the usual white spots.

"This species varies, as will be seen, a good deal both in size and tint. I may here note that in my opinion *C. tamaricis* (Tristram), figured in the *Ibis* for 1866, is nothing but *asiaticus*. Mr. Tristram says : "In form and size it much resembles *C. asiaticus*, but it is a trifle larger in all its dimensions," and then he gives these latter as follows :—

"Length, 9 ; wing, 5·6 ; tail, 4·2." Now it will be seen from the above that *asiaticus* varies in length from 8·75 to 9·36, and that the wing varies from 5·55 to 6, so that, as far as dimensions go, the species accord well enough. Then as regards plumage, though I have several darker specimens, I have three, any one of which might have been the original of the

figure in the *Ibis*, and two of these—a Kutch and a Sirsa bird—shot in just the same *Tamarisk* jungle in which Mr. Tristram procured his specimens. I may add, that between these specimens and the somewhat darker examples a perfect gradation of tint is exhibited. I am afraid we must say of *C. tamaricis*, "Delenda est."

At page 487 of Vol. V, I described a supposed new *Arachnothera* under the name of *A. simillima*. Since then Captain Shelley, to whom I sent the type, has expressed the opinion that the bird was abnormal, and he thought it probable that a second like it would never be obtained. I had almost become a convert in this view, when lo and behold our people sent us up from near Malacca three more specimens precisely similar to the type, two of which appear to be not only quite adults, but rather old birds.

Having now four specimens of this form, all of them of precisely the same type, I hardly see how we can avoid the conclusion that they represent a distinct species.

This, however, I must leave to my friend Captain Shelley, who has, I believe, figured the type.

Letters to the Editor.

Sir,

In the gardens of the Zoological Society of London there have been living since July 1875 two specimens of *Otogyps calvus* from India which appear to be fully adult, and of which one has the irides of a pale straw color, whilst in the other they are of so dark a brown as to be undistinguishable from the pupil by a spectator standing outside the bird's cage.

Mr. Bartlett, to whom I am indebted for calling my attention to this circumstance, informs me that the color of the irides in each bird was the same as it is now, when they arrived in the gardens in 1875.

Is this difference in the color of the irides sexual? I am disposed to think that it may be so, from the fact that in the adult male of the South American Condor, the irides are of a pale straw color, whilst in the adult female they are a very deep carbuncle red.

I am, &c.,

J. H. Gurney.

9th November 1877.

SIR,

I SEND by parcel post to-day a specimen of "ARDETTA CINNAMOMEA." From neither your finding it in Sindh or Southern Rajpootana, nor Butler in Guzerat, nor Adams at Sambhur, and from Fairbank finding it at Mahableshwar only, and not in the Deccan its occurrence at Ajmere is noteworthy.

Though Jerdon says *A. cinnamomea* is generally spread over India, I suppose, from what I gather from STRAY FEATHERS, that it is common in Eastern and Southern India only.

ARDETTA MINUTA is, I know, a great traveller, and perhaps *A. cinnamomea* may be so too on occasion, its wandering so far from its usual haunts in this instance being attributable to the continued strong easterly winds we have experienced for the last fortnight.

I shot it near Pokhar (8 miles from Ajmere) and in a wet nullah among sand hills.

Yours, &c.,
O. St. JOHN.

January 11*th*, 1878.

[I have never seen this species before from Rajpootana which surrounds Ajmere, nor from Northern Guzerat, Cutch, Kattiawar, Sindh, or the Punjaub, Trans-Sutledge, or strange to say, though it surely must occur there, any part of the Central Provinces. In the Punjab Cis-Sutledge, and in the upper portions of the North-Western Provinces, west of the Ganges, it occurs sparingly, but almost exclusively according to my experience as a seasonal visitant during the rainy season, during which I have obtained it myself in the Delhi, Meerut, Allyghur, Mynpooree and Etawah districts. Even at this season it is far from common in these localities.—ED., S. F.]

SIR,

I HAVE lately examined a pair of Albinos of *Turtur risorius* in confinement, that were taken from a nest near Jeempeer in Sindh.

The cock bird is pure white, with the exception of the basal half of the tail, which is pale grey on the under surface.

The hen is of a pale buffy fawn color throughout, darkest on the upper back, scapulars and wing-coverts, with a slight indication of a pale brown half collar, bordered on each side with white; the chin, throat, primaries, secondaries, and tail are whitish, the central tail feathers being narrowly edged with pale fawn; the basal half of the tail is pale brown below, and the lower abdomen and under tail-coverts are white.

In both sexes the bill is delicate pinkish flesh; the legs and feet red; and the irides deep ruby red.

They breed constantly in the cage they are kept in, and at the time I saw them there were a pair of young ones nearly full grown, one of which was the same color as the wild bird, and the other similar in plumage to the wild bird, but much paler and with the neck ring ill defined.

E. A. Butler, Capt.,
83rd Regiment.

Karachi, *9th February* 1878.

Sir,

I was so fortunate as to obtain a nest and egg of the Malabar Trojon (*Harpactes fasciatus*) the other day, and as you may care for an account of them, I send this note to you.

The nest is a very simple affair, being only a little rotten wood in a hollow at the top of a dead stump, and about eight feet from the ground. It did not seem to have been excavated at all, nor was there any entrance bored, as would have been the case with a Barbet's nest.

The eggs are, of course, pure white, very round, glossy, and rather large for the size of the bird. They were two in number, and as they were slightly incubated, I presume that is the full number laid. They measure :—

1·075 by 0·83.

1 by 0·92. Taken March 22nd, 1878.

The nest was in thick jungle.

F. Fulton Bourdillon.

S. Travancore, *April* 15*th*, 1878.

Sir,

I notice that both Jerdon and Mr. Hume state that the Common Palm Swifts (*C. batassiensis*) *invariably* breeds on the Palmyra Palm. In this district the Swift is rather common, and the Palmyra Palm is very rare; indeed I have not seen more than a dozen trees altogether. On almost all of them I have found the Swift breeding, but from the number of Swifts I have long been sure that they must breed on other trees, and to-day I took a nest on a leaf of the Beetle-nut Palm with three fresh eggs. There were many other Swifts evidently breeding in the same garden. The leaves of the Beetle-nut Palm bend down almost in the same way as the Palmyra. The nest was, however, on one of the upper leaves which was nearly horizontal.

Yours truly,
J. Davidson.

Tamkeve, Mysore, *8th May* 1878.

STRAY FEATHERS.

Vol. VII.] DECEMBER 1878. [Nos. 3—4.

My last Notes on the Avifauna of Sind.

By Captain E. A. Butler.

Numerous papers have appeared in this Journal of late years on the birds of Sind, and I too, in the period during which I have been quartered in this province, have endeavoured to contribute my mite towards a more perfect knowledge of its Avifauna. I am now about to leave the province, most probably for ever, and I wish, before taking my departure, to put on record some few further facts which may be useful to ornithologists who may hereafter work over this same ground.

I propose to divide my remarks into three sections :—

1*st*.—In regard to species not yet entered in preceding lists.

2*nd*.—Additional notes in regard to species already recorded.

3*rd*.—In regard to species which I have recently found breeding on the E. Narra.

1st Section.

Birds not included in previous lists.

Although so many papers have appeared in regard to this subject, I need only refer here to three, *viz*., the Editor's lists, Vol. I., p. 148, and Vol. V., p. 328, and Mr. Murray's list, Vol. VII., p. 113.

These three lists comprise a total of 358 species, and I have to add to them the following 13 species not included in either of these lists (though two of these, the Woodcock and the Swan, have already been referred to as occurring in Sind in other papers by myself, Mr. Blanford and the Editor), thus making a grand-total of 371 species, or excising, as I

should be inclined to do, as not sufficiently well ascertained, *Charadrius pluvialis* and *Sterna dougalli*, 369.

12*bis*.—Falco barbarus, *Lin.*

This species is by no means uncommon in Lower Sind during the cold season; in fact, to judge from my experience, it is more common than *babylonicus*, *peregrinus* or *sacer*, which latter I never procured.

Of the present species I shot three, two at Hyderabad and one at Karachi, and append measurements of the specimens, which have been identified by the Editor, in whose museum they now are:—

		Length.	Wing.	Tail.	Bill at front.	Bill from gape.	Expanse.
Hyderabad	♂	14·75	10·87	5·75	1*	1·12	32·75.
„	♂	14·75	10·87	6·0	1	1·12	34·25.
Karachi	♂	14·5	10·87	6·0	1	1·12	32·5.

The first male, which was quite adult, had the legs and feet deep lemon yellow; the bill, bluish plumbeous, yellowish at the base and tipped blackish plumbeous.

In the others, which were in immature plumage, the bill was yellowish horny at base, dusky slatey at tip; legs, feet, orbital skin and cere, lemon yellow; irides, dark brown. One of the most striking characteristics in the plumage of the adult bird is the rufous halo that surrounds the moustachial stripe.

I saw one in pursuit of a pair of Whistling Teal (*Dendrocygna javanica*, Horsf.) near Hyderabad on the 15th November this year. The Ducks, which must have been disturbed from some neighbouring piece of water, passed me at a thousand miles an hour, with the Falcon in close pursuit, and dashed head first into a small tank near which I was standing, diving simultaneously the moment they reached the water. The Falcon swept backwards and forwards over the tank for some minutes, stooping at the birds whenever they appeared above the water, but they were too quick for him, diving at each "stoop" just in time to avoid his talons, and eventually he gave it up and left the tank.

31.—Aquila pennata, *Gmel.*

I found the Dwarf or Booted Eagle not uncommon in the neighbourhood of Hyderabad last cold weather, and shot one very handsome specimen with the lower surface white, streaked with dark brown, measuring—Length, 19·25; wing, 15; expanse, 47. I saw other specimens with the lower surfaces reddish brown.

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* Including cere.

75*ter*.—Scops indicus, *Gm.* = S. griseus, *Jerd.* = S. bakhamuna, *Forst.*

I shot three Scops Owl of this species at Hyderabad at the beginning of the hot weather this year (1878). The gizzard of one contained a small bird, the size of a sparrow, which I fancy the Owl must have killed. The first bird I shot I found sitting asleep in a dense babool thicket on the 17th March, and the testes were greatly enlarged. The other two I shot off the nest on the 10th April, and I append an extract therefore from my Nesting Memoranda:—"At Hyderabad, Sind, on the 10th April 1878, I found a Scops Owl's nest in a hole of a large tree, about 40 feet from the ground. A young bird, about 10 or 12 days' old, was lying at the foot of the tree, but, how it got there, unless crows had picked it out of the hole, I don't know."

There were several Crows in the tree, and one of the parent birds (*female*), which flew out of the tree on my throwing up a stone, seemed much excited. I sent a boy up to examine the nest, but it was empty, so I proceeded to secure the two old birds. The hen I shot without any trouble, but I had a long search for the cock bird, who was sitting asleep on another tree, about 50 yards from the nest, looking for all the world like a bit of a dead bough projecting from the branch on which he was sitting. These three birds are all exactly alike in plumage, (excepting that in one the wing-lining is pale yellowish or fulvous instead of being white), and agree well with the description in Mr. Hume's Raptores, p. 398, except in measurements, which are as follows:—

Sex.	Length.	Wing.	Tail.	Bill at front.	Bill from gape.	Expanse.
Male	9	6·62	3·37	0·87	0·93	23
,,	9·5	6·62	3·37	0·8	0·87	23
Female	9·5	6·87	3·62	0·8	0·87	23

Irides, rich hazel brown; feet, greyish plumbeous; bill, dusky horn above, pale below.

It cannot be common, as I have only seen the three specimens above mentioned, and have heard of no other instance of its occurrence.

[These are the largest and finest specimens of this species that I have seen, but they are not specifically separable. —A. O. H.]

114*bis*.—Caprimulgus unwini, *Hume*. DESCR. S. F., III, 407.

Unwin's Nightjar, which, although of silvery paleness, is evidently very closely allied to *C. europæus*, is *very* common about Hyderabad and the country east, in September and October,

arriving towards the end of August, just about the same time as the Grey Quail.

In its habits it is much more arboreal than most of the other species, resting the whole day asleep (lengthways) almost invariably upon a bough of some thick babool tree, usually some ten or fifteen feet from the ground.

In the evening the moment it begins to get dusk it sallies forth, and commences hawking for insects, flying up and down the avenues of trees on either side of the roads; and skimming over the high crops of jowarree which abound at that season.

During its nocturnal peregrinations it frequently settles upon telegraph wires, dead boughs or bare branches of trees, and I have occasionally seen it on the ground, but it prefers the telegraph.

It is a very handsomely marked species, and the white line along the edge of the lower mandible (as in *C. europæus*), the dusky ear-coverts and the conspicuous broad buff markings of the wing-coverts, together with the silvery nature of the plumage, render it easily distinguishable from any other Night-jar that occurs in this part of the country.

Many of the specimens I preserved, presumably young birds, have no white spots on either the wings or the tail, and some have the lower tail-coverts conspicuously barred, whilst others have them plain. However, I have forwarded Mr. Hume some very good specimens, which, with one or two others sent to him by Mr. Doig from the same locality, will doubtless enable him to discover and point out all of these peculiarities. I append measurements of nine specimens measured in the flesh :—

Sex.	Length.	Wing.	Tail.	Bft.	Bfg.	Exp.	Locality, &c.	
Female	9·87	6·87	4·75	.31	1·31	20·5	Hyderabad	17-9-78
Male	9·87	6·87	4·62	·25	1·18	20	ditto	21-9-78
* ,,	10·37	7·25	5·25	·37	1·31	20·5	ditto	23-9-78
,,	9·75	7	4·5	·37	1·31	20·5	ditto	23-9-78
Female	10·37	7·25	4·62	·31	1·25	21·5	ditto	24-9-78
?	9·75	6·75	4·62	·37	1·25	20	ditto	28-9-78
Male	9·87	7	4·62	·37	1·31	20·25	ditto	30-9-78
,,	10·	7	4·5	·43	1·25	20·5	ditto	3-10-78
,,	10·37	7·25	5	·37	1·31	21·5	ditto	13-10-78

Legs and feet, greyish brown; bill, dusky; irides, blackish brown.

[See my remarks, S. F., IV., 501. At that time I was not disposed to keep *Unwini* separate, but having now compared large series of it and the European bird, I really fail to see how they can be united, so long as the practice of ornithologists continues to be what it is. No single specimen of the one,

*Measured and sexed by Mr. Doig.

that I have seen, makes the slightest approach to any specimen of the latter.—A. O. H.]

605*quat.*—Anthus blackistoni, *Swinh.*, DESCR. S. F., V., 345.

I shot a Pipit in the Lyarree Gardens, Karachi, last cold weather, which, on reference to Mr. Hume, proved to belong to this species. There were a considerable number of them at the time feeding on some irrigated ploughed land that was being prepared for cultivation, and on being flushed they settled all over a field of short lucerne grass.

The dark color of the upper plumage at once attracted my attention, but on examining the specimen above mentioned I came to the conclusion that it was only a dark variety of *Anthus arboreus.*

803.—Pavo cristatus, *Lin.*

The Peacock, Mr. Doig informs me, was introduced into the Narra Districts a few years ago, and breeds in a wild state there now. I have noticed it myself occasionally in the gardens about Hyderabad in a semi-domesticated state, and I am informed that it occurs in other parts of Lower Sind as well.

867.—Scolopax rusticola, *Lin.*

I have already recorded the occurrence of the Woodcock in Sind (*ante*, Vol. V., 504), and have nothing further to add.

933.—Ardetta cinnamomea, *Gmel.*

The Chestnut Bittern occurs sparingly in the E. Narra during the monsoon season, coming in about the same time as *Ardetta sinensis* to breed, after which, I believe, it leaves again. Mr. Doig found a pair at Sindree * at the beginning of September, and, not knowing that they were building, shot the cock bird, which he kindly lent me to examine. The nest was similar to that of *A. sinensis*, being composed of sedge, but differed in being flat at the top instead of being hollowed out for the eggs.

934.—Ardetta sinensis, *Gmel.*

The Yellow Bittern is not uncommon in the E. Narra. In a recent trip Mr. Doig and I observed several in one of the dhunds at the end of July, but as dissection proved that they were about to commence breeding, we only shot one specimen, leaving instructions with the fishermen to secure eggs as soon

* The name of the house he lives in, on the Narra.

as they began to lay, and about ten days later they sent us in about a dozen eggs.

944*ter*.—Cygnus olor, *Gm.*

Mr. Watson, Deputy Collector of Sehwan, shot three Mute Swans last year in a marsh adjoining the Munchar Lake. There were two others with them at the time, but he allowed them to escape, considering that there were as many as his taxidermist could manage at one time. (See further, *ante*, pp. 99—108.)

976.—Oceanites oceanica, *Banks.*

This Petrel, which I obtained along the Mekran coast last year, S. F., Vol. V., 291., may now be included in the Sind list, as Captain Bishop, who was with me at the time the specimen was shot, and who knows the bird well, informs me that he noticed several lately, in a recent trip along the coast, between Karachi and the mouths of the Indus.

992.—Sterna anætheta, *Scop.*

The Panayan Tern may also be included in the list of Sind birds, as Captain Stiffe and Captain Bishop, H. M. S. "Amberwitch," both assured me positively that they saw several along the coast between Karachi and Bombay last year, and that many of them were caught at roost on board by the sailors.

1006.—Phalacrocorax fuscicollis, *Stephens.*

Under this number I am inclined to think that Jerdon has mixed up two species, as he gives the length as varying from 24 to 29 inches, and from recent observations made in the E. Narra I am disposed to think that there are two intermediate species. The present species, a good specimen of which I forwarded to Mr. Hume, is the same as the bird I got in Guzerat (Vol. IV., 33,) and measures from 24 to 25 inches, with an expanse of about 40 inches. This bird is common in the E. Narra and in other parts of Lower Sind, &c., we found it breeding in colonies with *Plotus melanogaster* and *Phalacrocorax melanognathus* at the end of July. In the same dhund, however, another bird, with a very conspicuous white cheek patch, was also breeding—a bird, so far as we could judge, about half way in size between the present species and *P. carbo*. Unfortunately we only managed to shoot one specimen, and that, being only winged, escaped; but we shall doubtless procure others later as the fishermen recognize the four species and have promised to send us skins of the one we want. The natives talk of them as the large and small *Big* Cormorant, and the large and small *Little* Cormorant, and one

morning when we laid out three species that we had shot before them, in the verandah of the bungalow we were stopping in, *viz.*, *P. carbo*, *P. fuscicollis* and *P. melanognathus*, they at once said that we had not got the bird whose eggs they had brought us the day previous, namely, the small *Big* Cormorant with the white cheek patch. It is possible, however, that the larger of these two birds may be the male, and the smaller the female, and that there is only the one intermediate species after all as I see that the only specimens I have measured were all three females.

I have reason to believe that *Syrnium ocellatum*, Less., occurs in the E. Narra and the country east of Hyderabad, but have not yet seen a specimen, so have not included it in the above list.

2ND SECTION.

Additional notes in regard to species already noticed.

2.—Otogyps calvus, *Scop.*

Not uncommon at Hyderabad and in the E. Narra, where it breeds. It occurs also in the neighbourhood of Karachi.

5.—Gyps bengalensis, *Gm.*

Decidedly common in the E. Narra and about Hyderabad, and breeds in the former district. It is also not uncommon in the neighbourhood of Karachi.

12.—Falco babylonicus, *Gurney.*

The Red-cap Falcon is not perhaps very uncommon in the cold weather in Lower Sind, and probably occurs as well in Upper Sind also. I shot one (identified for me by the Editor) near Hyderabad last cold weather, and heard of numerous other instances of its occurrence. I append measurements of the specimen which I preserved :—

	Sex.	L.	W.	T.	B. at f. including cere.	B. fr. g.	Exp.
Hyderadad	♀	16·75	12·87	7	1·18	1·25	40

This bird, a female, which was in immature plumage, had the legs, feet, cere and orbital skin, pale lemon yellow. The bill was bluish plumbeous, yellowish at the base and tipped blackish plumbeous.

15.—Falco æsalon, *Tunst.*

I noticed one or two pairs about Karachi last cold weather. The Lyarree Gardens seemed to be their head-quarters.

16.—Falco chiquera, *Daud.*

Not very uncommon about Hyderabad and in the E. Narra.

24.—Accipiter nisus, *Lin.*

Not uncommon in the Lyarree Gardens, Karachi.

59.—Elanus cæruleus, *Desf.*

Occurs sparingly in the E. Narra.

60.—Strix javanica, *Gm.*

I have met with one on two or three occasions at Hyderabad.

68.—Asio accipitrinus, *Pall.*

Is not uncommon about Hyderabad, and I have observed it also in the neighbourhood of Karachi.

69.—Bubo bengalensis, *Frankl.*

I have seen skins of two or three specimens shot in Lower Sind.

70.—Bubo coromandus, *Lath.*

Not uncommon about Hyderabad and in the E. Narra, where it breeds.

74.—Scops pennatus, *Hodgs.*

Mr. Murray asked me to examine a lovely specimen of this beautiful little Scops Owl that was captured alive in the Lyarree Gardens near Karachi on the 16th November last year* (1877), and as it agreed exactly with the description in Jerdon, I have no hesitation in referring it to this species. I sent it to Mr. Hume, however, to make sure, and to my disgust it was lost in the Post Office. It only lived a few days after it was caught, and as I measured it after it died, I am fortunately able to give the measurements, *viz* :—

Sex	L.	W.	T.	B at f. including cere.	B fr. g.	Exp.
♀	8	6·25	3	0·69	0·75	21

Bill and cere, bluish plumbeous, dusky at tip; legs and feet, brownish grey; irides, pale yellowish green or greenish yellow. I have heard of no other instance of its occurrence in Sind.

Since the above was in type I was fortunate enough to secure another specimen at Hyderabad, measurements of which I append.

I found a pair of them sitting in a dense mango-tree in a garden near the river, but one of them was so badly shot as to

* This is the bird referred by Mr. Murray, Vol. VII, p. 113.

be useless. A few days later, about the 15th November, I noticed another pair in the same garden, but unfortunately had no gun with me. Measurements taken in the flesh :—

Sex	Length.	Wing.	Tail.	Bill at front.	Bill from gape.	Expanse.
♀	8·12	6·25	3·12	·68.	·75.	12.

84.—Hirundo filifera, *Steph.*

Arrives in May, and breeds in June, July, and August, at which time it is very common about Hyderabad and in the E. Narra, building its nest under the bridges which cross the canals. It leaves after breeding I believe, as I never observed it in the cold weather.

99.—Cypselus apus, *Lin.*

I observed at Hyderabad in the cold weather on several occasions, usually flying high, and in company with *C. affinis.*

113.—Caprimulgus mahrattensis, *Sykes.*

Common in the E. Narra, and breeds there all through the hot weather up to the rains. Goat-suckers occur also about Hyderabad, some of which probably belong to this species.

120.—Merops ægyptius, *Forsk.*

I observed several single specimens, and also one immense flock of the Egyptian Bee-eater about 40 miles west of Hyderabad in July, along the road leading to the Narra, and I have also noticed it passing over Hyderabad in the hot weather.

125.—Coracias garrula, *Lin.*

Occurs sparingly in Lower Sind in September and October. Mr. Doig obtained a few good specimens in the neighbourhood of Hyderabad this year (1878) in the latter month.

160.—Picus mahrattensis, *Lath.*

I have seen several skins of birds that have been killed in the vicinity of Hyderabad, but have not noticed it in that neighbourhood myself.

199.—Cuculus canorus, *Lin.*

The European Cuckoo, of which I shot specimens myself in the Lyarree Gardens, Karachi, and heard of others being shot in other parts of Lower Sind also, visits us only for a few days at the seasons of migration.

212.—Coccystes jacobinus, *Bodd.*

In continuation of my remarks, Vol. V., 327, I may add that the bird is common in the rains in the E. Narra, and in the neighbourhood of Hyderabad also.

214.—Eudynamys honorata, *Lin.*

Decidedly rare. I have only seen it once in Lower Sind, and that was at Hyderabad along the banks of the river in the month of June.

292.—Leucocirca albofrontata, *Frankl.*

Common about Hyderabad, in the Lyarree Gardens, Karachi, and on the E. Narra.

273.—Pericrocotus brevirostris, *Vig.*

Mr. Doig, who is a very accurate observer, described a bird which he saw in the E. Narra at the beginning of September, that must have belonged to this species, which supports the entry in Mr. Murray's list.

299 *bis.*—Butalis grisola, *Lin.*

I shot a single specimen in the Lyarree Gardens, Karachi. I also observed this bird occasionally about Hyderabad in the month of October.

323.—Erythrosterna parva, *Bechst.*

Very common about Hyderabad in March and April, and not uncommon in the Lyarree Gardens, Karachi.

439.—Chatarrhœa earlei, *Blyth.*

Very common in the E. Narra.

443.—Laticilla burnesi, *Blyth.*

Common in the E. Narra, where it breeds in the hot weather.

462.—Pycnonotus hæmorrhous, *Gm.*

Common at Sindree (the Executive Engineer's bungalow, E. Narra, about 65 miles east of Hyderabad) which is surrounded by a large garden, but I have seen it nowhere else in Lower Sind. Many of the birds were breeding in the rose trees in front of the house.

470.—Oriolus kundoo, *Sykes.*

The Indian Oriole occurs occasionally in Lower Sind, but is decidedly uncommon. I have examined skins obtained in the neighbourhood of Hyderabad, and know of its occurrence in the Lyarree Gardens, Karachi, and in the E. Narra also.

488.—Saxicola opistholeuca, *Strickl.*

I have seen a few specimens from Upper Sind.

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1875.
CALCUTTA

491*bis*.—Saxicola kingi, *Hume*.

Not uncommon about Karachi and Hyderabad.

492*ter*.—Ædon familiaris, *Menetries*.

Occurs sparingly about Kotri and Karachi.

515.—Acrocephalus dumetorum, *Blyth*.

I procured one or two specimens of the Lesser Reed Warbler in the Lyarree Gardens near Karachi last cold weather, and later on about the time they were leaving I observed a few about Hyderabad. As this species, *Hypolais rama* and *H. caligata*, are often confused, collectors should always look at the wing for the *minute first primary*, one of the chief characteristics of the present genus by which, as pointed out to me by the Editor, it can at once be distinguished from *Hypolais*.

530.—Orthotomus longicaudatus, *Gmel*.

Very common in the Lyarree Gardens, Karachi; also observed in the gardens about Hyderabad, Kotri, and at Sindree.

539.—Cisticola cursitans, *Frankl*.

Common amongst the crops in the Lyarree Gardens, Karachi.

551.—Franklinia buchanani, *Blyth*.

Not uncommon about Karachi, and noticed also in the E. Narra, and in the neighbourhood of Hyderabad.

553*bis*.—Hypolais caligata, *Licht*.

Occurs in the neighbourhood of Karachi and Hyderabad. It is very similar to *Acrocephalus dumetorum*, but differs in the shape of the bill, and wants the minute first primary of that genus.

554.—Phylloscopus tristis, *Blyth*.

Common in the Lyarree Gardens, Karachi.

559.—Phylloscopus nitidus, *Lath*.

Observed occasionally about Karachi.

583*bis*.—Sylvia nana, *Hemp. and Ehr*.

Common as it is about Karachi and Hyderabad in the cold season, I never observed it in the hot weather, and consequently do not fancy it breeds here.

604.—Agrodroma sordida, *Rüppel*.

Observed in the neighbourhood of Karachi and Kotri.

687.—Temenuchus pagodarum, *Gmel.*

I shot a single specimen of the Black-headed Myna in the Lyarree Gardens, Karachi, on the 13th November last year, but heard of no other instance of its occurrence in Sind, until I saw from Mr. Murray's paper that he had shot a specimen at Trianhee.

690.—Pastor roseus, *Lin.*

Extremely common about Karachi, Hyderabad, and in the E. Narra. It does not leave until certainly as late as the 10th May, upon which date this year I saw one or two large flocks, and it returns again as early as the 10th of July, if not earlier. Where can they go in such a short time to breed?

694.—Ploceus philippensis, *Lin.*

Not uncommon about Hyderabad and the country east, and I have noticed nests of all three species—the present, *manyar* and *bengalensis* on the same tree.

711.—Gymnoris flavicollis, *Frankl.*

Very common about Hyderabad in the hot weather, at which season it breeds, a favorite site for the nest being the inside of the bulb at the top of the lamp posts in camp. I did not notice it in the cold weather, so probably, as Mr. James suggests, Vol. I., 420, they leave after the breeding season.

716.—Emberiza buchanani, *Blyth.*

Noticed occasionally about Karachi and Hyderabad, principally at the seasons of migration.

716*bis*.—Fringillaria striolata, *Licht.*

Common about Hyderabad and the surrounding country, wherever there is stony ground.

721.—Euspiza melanocephala, *Gmel.*

Common in Lower Sind at the seasons of migration and during the time the crops are ripening.

732*bis*.—Bucanetes githagineus, *Licht.*

Common about Hyderabad and the surrounding country, and not uncommon in the neighbourhood of Karachi.

751*ter*.—Linaria cannabina, *Lin.*

In November last I saw a bird one evening in the Lyarree Gardens at Karachi, which I at once thought belonged to this species, and I remember writing to Mr. Hume at the time and mentioning the circumstance. I was close to the bird and

had every opportunity of examining it carefully, and if it had not been for the bad light (for it was getting dusk at the time) I should have been able to have settled what it was. However, now that a Brown Linnet has been found in Sind, I feel the more confident that the bird I saw did belong to that species.

767.—Alauda gulgula, *Frankl.*

The Indian Sky Lark is not uncommon about Hyderabad during the autumnal months, but I fancy that after the crops are cut and the grass disappears it leaves us.

It reminds one much of the English Sky Lark in the way it rises into the air in the early morning, often to an immense height, singing melodiously the whole time, and it returns to the ground too just like *A. arvensis*, descending slowly after its song is finished for a short distance with outspread tail and wings, and then suddenly closing both, it drops like a stone to the ground to join its mate.

The note, though nothing like as powerful as *Alauda arvensis*, is rich and lark-like.

769.—Galerida cristata, *Lin.*

As regards this species I am strongly inclined to think that if there are not two distinct species of Crested Lark in Sind there are certainly two races. The bird I got in Karachi, which is common, remains there the whole year round, and breeds there during the hot weather, is a considerably smaller bird than the bird I have lately noticed about Hyderabad, and which arrives apparently about September with the other birds of passage, and which I believe to be only a seasonal visitant. The great difference in size at once struck my eye, and it occurred to me, when I saw the first one running along the ground, that it was a *Melanocorypha*. However, I append measurements of both birds, and having forwarded skins of each also to Mr. Hume, I must leave our worthy Editor * to clear up the subject. The subjoined measurements were all taken by myself in the flesh, and the birds were in every instance in full plumage :—

Sex.	Length.	Wing.	Tail.	Bill at front.	Bfg.	Expanse.	Locality.
Female	6·87	3·75	2·31	·5	·81	12	Karachi.
Male	7·25	4	2·62	·71	·87	13	
Female	6·75	3·75	2·37	·62	·78	12·25	
„	6·62	3·50	2·25	·62	·81	12·12	
„	7·50	4·25	2·75	·62	·87	13·87	Hyderabad.
Male	7·62	4·43	2·75	·68	·81	14·25	
„	7·5	4·37	2·75	·68	·81	14	

* See remarks, I., 214, *et seq.*

770.—Certhilauda desertorum, *Stanley.*

Observed occasionally about Karachi.

797.—Turtur tranquebaricus, *Müll.*

Extremely plentiful after April in the neighbourhood of Hyderabad, where it breeds in June and July. I did not notice it in the cold weather, so probably it leaves after the breeding season. I saw it occasionally also in the E. Narra.

799.—Pterocles arenarius, *Pall.*

Occurs occasionally in Lower Sind.

835.—Turnix dussumierii, *Tem.*

Not uncommon during the rains in the E. Narra and about Hyderabad.

836.—Otis edwardsi, *Grey.*

Common in the Thur and Parkur Districts, and occurs occasionally in other parts of Lower Sind as a straggler also. I received a specimen this year killed 14 miles from Hyderabad on the banks of the Indus.

842*bis*.—Glareola pratincola, *Lin.*

I have only heard of one other specimen since the two were recorded from Kotree, Vol. IV., 507, and that was captured alive in the same neighbourhood.

845.—Charadrius fulvus, *Gmel.*

I have shot a good many Golden Plovers since my arrival in Sind in the neighbourhood of Karachi, where it is not uncommon, and have examined several skins from other parts of the country, but have never seen a specimen of *C. pluvialis.*

851.—Vanellus cristatus, *Meyer.*

Occurs sparingly in the E. Narra and in other parts of Lower Sind during the cold weather.

858.—Esacus recurvirostris, *Cuv.*

Observed occasionally on the mud banks in the Karachi Harbour, and I have little doubt that a pair I saw on a shingly island at the end of the Harbour in the hot weather were breeding.

861.—Dromas ardeola, *Payk.*

Not very uncommon in the Karachi Harbour, and breeds up the Gulf, as a young bird in down was caught this year upon

one of the islands opposite Bushire on the 10th June, and forwarded to me with the parent bird for identification.

864.—Grus leucogeranus, *Pall.*

Mr. Doig came across this Crane in the E. Narra last cold weather, but it is decidedly rare.

873.—Rhynchæa bengalensis, *Lin.*

Not uncommon in the E. Narra, where Mr. Doig found it breeding at the end of June. One batch of young ones were then just able to fly, and a nest he found contained eggs about to hatch. It occurs also in other parts of Lower Sind.

878.—Numenius phæopus, *Lin.*

Very common in the Karachi Harbour, a few remaining all through the hot weather, though of course they don't breed there.

892.—Totanus ochropus, *Lin.*

Very common in the E. Narra and about Hyderabad, and not uncommon about Karachi.

893.—Totanus hypoleucos, *Lin.*

Not uncommon in the same localities as the last.

904.—Gallicrex cristatus, *Lath.*

There is no doubt whatever about the bird referred to, *ante* Vol. V., 247, having been shot in the E. Narra, as Captain Bishop gave me full particulars about it, and described the exact spot where he killed it. It must, however, be a rare bird there as Mr. Doig has never come across it.

907.—Porzana phœnicura, *Penn.*

Very common in the E. Narra where it breeds. Also observed occasionally in the Lyarree Gardens, Karachi.

909.—Porzana maruetta, *Brisson.*

Occurs in Lower Sind. I examined a fine specimen shot in September 1878, by Mr. Doig, near Hyderabad.

915.—Leptoptilus argala, *Lin.*

Common in the E. Narra, and not uncommon during the rainy season in other parts of Lower Sind also.

931.—Butorides javanicus, *Horsf.*

Common in the E. Narra, and not uncommon in the inundation about Hyderabad, in both of which localities Mr. Doig and I found it breeding in July. I also observed it

occasionally about the swamps surrounding the Karachi Harbour, and obtained a nest with fresh eggs in May.

938.—Tantalus leucocephalus, *Gmel.*

The Pelican Ibis is common in the Narra District, and breeds there about October or November. I saw a large flock myself in the hot weather on an island in the Karachi Harbour, and have heard of it also in other parts of Lower Sind, besides the localities mentioned.

940.—Anastomus oscitans, *Bodd.*

During a recent trip to the E. Narra with my friend Mr. Doig, we found about 20 pairs of Shell Ibises breeding, or rather commencing to build, at the end of July in a dense jhow (*T. indica*) thicket growing in the middle of a large dhund, in company with huge colonies of Egrets, Herons, Cormorants, Snake Birds, White Ibis, &c., &c., and Mr. Doig informs me that the bird is common throughout the district. About a week afterwards our men revisited the place and took about 40 eggs.

943.—Falcinellus igneus, *Gmel.*

Common in the E. Narra, where I *believe* it breeds, but nests have not yet been taken. I have also noticed large flocks in the neighbourhood of Hyderabad during the monsoon.

956.—Tadorna cornuta, *Gm.*

Occurs occasionally in the E. Narra, and I have heard of it in other parts of Lower Sind also, but it must be regarded as a rare bird in these parts.

965.—Querquedula circia, *Lin.*

Common in the E. Narra and in other parts of Lower Sind. Scores of Blue-winged Teal are netted annually in the different swamps along the railway between Kotri and Karachi, and brought into the Karachi market for sale.

967.—Fuligula rufina, *Pall.*

Common in the E. Narra and other parts of Lower Sind.

973.—Mergellus albellus, *Lin.*

Occurs in the E. Narra, but only as a rare visitant.

Referring to the "Resumé of Recent Additions to the Sind Avifauna," Vol. V., 328 and 329, as I said before, I doubt the occurrence at present of *Charadrius pluvialis* in Sind, and *Sterna dougalli* may also, I think, be safely erased from the list, as I have never seen the bird myself, neither has any one yet procured me a specimen.

3RD SECTION.

In regard to species recently observed breeding in the Eastern Narra.

In conclusion, a short account of a breeding ground in the E. Narra, which Mr. Doig and I visited this year (1878), may not be out of place.

The following is a list of the birds that were then breeding :— *Ardea cinerea, A. purpurea, Herodias alba, H. intermedia, H. garzetta, Buphus coromandus, Ardeola grayii, Nyctiardea nycticorax, Anastomus oscitans, Ibis melanocephalus, Phalacrocorax fuscicollis, P. melanognathus, Plotus melanogaster.*

The spot selected consisted of a dense thicket of Tamarisk trees (*Tamarix indica*) extending over several acres of ground in the middle of a large dhund, which in the hot weather becomes dry, but where in the monsoon season the water rises to a height of some four or five feet, and for miles the jungle becomes partly submerged.

On the 24th July we left home at day-break, and after riding three miles along a bund we got into a boat and rowed another three miles to the edge of the thicket. We then took off our clothes and descended into the water (about five feet deep) accompanied by two coolies carrying egg boxes and an old fisherman (whom from his amphibious disposition we subsequently christened "*Aquaticus*") to climb the trees.

Everything being ready, we proceeded towards the spot where the birds were breeding, which was in the middle of the thicket further on, and to arrive at which we had to force our way with considerable difficulty through dense jungle for some 200 or 300 yards. At length we reached the place, and a more imposing sight I never witnessed.

Herons, Egrets, Cormorants, Snake Birds, &c., breeding in hundreds, in fact I believe I may almost say in thousands, without exaggerating, and nests as thick as in a rookery in every direction.

As soon as the birds caught sight of us, they began to rise with the most deafening clamour, and no sooner were they off their nests than down swooped a colony of crows and commenced helping themselves to the eggs in the most liberal manner. At first we did not know what to do to get rid of them. We dared not make a noise, as of course that would have frightened the other birds also, and we were almost in a state of despair, when the happy thought struck us to arm ourselves with a few handfuls of the commoner kinds of eggs that we did not care about, and use them as missiles. This

plan answered admirably, the moment a crow descended in future a well directed egg or two quickly caused him to retreat, and in a very short time they got tired of following us about and took their departure.

The Egrets and Herons seemed to breed together promiscuously, though sometimes we found nests of both the Purple and Blue Herons, in small detached groups; while the Snake Birds, Cormorants, White Ibises, and Night Herons built amongst the others, but in separate colonies.

The White Ibises, of which there were about a dozen pairs, had all built together on a tree that had been partly blown down, and the nests which looked exactly like the nests of *Herodias intermedia* or *H. garzetta*, were only about one or two feet apart. Eggs had been taken from these nests for us the week previous, but the birds had all laid again, as we found fresh eggs in every nest, but one, which had young ones in it. Most of the eggs were plain, but some were conspicuously spotted with yellowish brown.

The Night Herons, as usual, had selected one of the densest parts of the thicket to build in, where, for variety, a few large clumps of tall bulrushes were growing amongst the "jhow" trees. In these clumps, and in the trees adjoining their nests, which were precisely similar to the Egrets' nests, were built, but unfortunately they were still building, and so we got very few eggs.*

The Shell Ibises, some twenty pairs in all, had built in another part of the thicket, but as they had not laid,* and as it was some 200 or 300 yards further on, we did not visit the place ourselves; however we saw the old birds soaring round and round in the air over the nests.

As regards the Cormorants, we certainly saw two species breeding, *Phalacrocorax fuscicollis* and *P. melanognathus*, but the natives, whom we found very reliable, as a rule, say that another species, intermediate between *Phalacrocorax carbo* and *P. fuscicollis*, breeds there also, and that it has a patch of white feathers on each side of the head. Whether this really is another species, or whether it is the male of *P. fuscicollis*, I am not yet in a position to decide.

After spending about 4½ hours, up to our shoulders, in the water, and having collected as many eggs as we wanted, and seen all that was to be seen, as it was a blazing hot day, we waded back to the boat and returned home for breakfast.

The whole of the nests referred to above were built at heights varying from three feet to ten or twelve feet above the level of the water.

* Subsequently, about a week later, our men returned to the swamp and brought us any number of Night Heron's and Shell Ibis's eggs.

After we left the Narra, our men found numerous nests of *Butorides javanicus* and a few of *Ardetta sinensis*. *Laticilla burnesi* had apparently just finished breeding at the end of July, as we noticed several young birds only just able to fly, and the sexual organs of the old birds we examined had almost resumed their ordinary proportions.

Since the above was written Mr. Doig found a pair or two *Ardetta cinnamomea* breeding in the Narra.

From the Ganges to the Godaveri.

On the distribution of birds, so far as it is at present known, throughout the hilly region which extends from the Rajmehal Hills to the Godaveri Valley.

By V. Ball, M.A., F.G.S., *Geological Survey of India.*

Having spent thirteen camping seasons in the districts included in the wide, and for the most part little known, region which is contained between the above-indicated limits, I think the time has arrived when I may venture upon publishing a general sketch of the distribution of the birds which occur there. This region will be found to correspond very nearly with the Bengal *sub-province* as defined by Mr. W. T. Blanford.*

Hitherto no attempt has been made to prepare a *complete* list of the birds found in it—the nearest approach in that direction having been made by myself in my list of Chutia Nagpur birds.† Since that list was published, a good many additional species have been obtained, and several important changes in the nomenclature‡ and identification then adopted have become necessary.

Chutia Nagpur occupies a nearly central position in the area now under description, and its Avifauna may be regarded as being fairly representative, but it will be seen that the present list includes many species not found in that division.

In preparing this list I have thought it, on the whole, safer to make no entries of localities, except those of which there

* The African element in the Fauna of India, by W. T. Blanford, F.R.S., Ann. and Mag., October 1876.

† S. F., Vols. II. and III.

‡ I have corrected this to the best of my ability up to date, excepting only a few names in which I was not sure whether Mr. Ball would accept my corrections.—Ed.

is an absolute record, either in the published or manuscript lists which have been available for the purpose. It would doubtless not be incorrect to enter the names of *all* the localities under the headings of many of the common species of known wide range throughout the Peninsula; but if this practice were once entered upon it would be difficult to draw the line.

I make no attempt here to indicate, by signs or otherwise, the comparative rareness or abundance of different species in the respective districts, since the information available is quite insufficient for doing so with any degree of uniformity.

The original tabular form in which I arranged my materials for this Paper has one advantage over that, which, at the desire of the Editor, has been adopted for publication. It is, that under the heading of each district the species known to exist within such limits respectively can be seen at a glance. This, however, though an undoubted convenience to local observers, has perhaps little other advantage than that the eye can more readily grasp the main features of the distribution in the case of certain species. On the other hand, error is very apt to creep into a long and somewhat complicated table. It is apt to be misquoted, and the printing is cumbrous and expensive. The present arrangement admits more readily of supplementary remarks being made after each species.

Before commencing the list it will be necessary, in order to avoid repetition, to enumerate the authorities which have been quoted in the case of each district.

Appended to the list will be found some remarks on species which have been stated to occur within the area, but which I have not included, deeming the evidence of their occurrence as insufficient. The most remarkable species met with just beyond the limits of the sub-province are also enumerated. Some of these illustrate very markedly the value of the sub-province as a natural area of distribution.

Birds mentioned by Dr. Jerdon as coming from "Central India" and the "Eastern Ghats" are not necessarily included, as these geographical expressions are of too vague or too loose an application for the present purpose.

Enumeration of Districts and Authorities.

Rajmehal Hills.—I use this title for the Government tract in the Sonthal Pergunnahs known as the *Daman-i-Koh*, which

includes, besides the hills, a narrow belt of low-lying land in the neighbourhood. This will account for the number of water-birds included. As I shall have to explain on a subsequent page I exclude several species which are found on this border-land, as they do not belong to our present sub-province, but are eminently characteristic of the one next adjoining. The actual bed and margins of the Ganges are outside the sub-province.

My collection in this district was made during the season 1869-70. It was by no means an extensive one, and there is but little other material available. Dr. Jerdon gives this locality for a few birds—chiefly rare species.

Bhagulpur.—This district might have been omitted from the list so far as material exists, for an account of the birds, but the hilly western and southern portions, adjoining the *Daman-i-Koh*, belong naturally to our area, and they were partially traversed by me in 1869-70.

Birbhum.—Regarding this district, too, there is very little information. I have on two occasions spent a few days in it, and the Indian Museum has received some specimens from that part of the country.

Bardwan.—This district includes Ranigunj, Barakar, Bankura and Assensole. I have collected and noted birds in all of these areas, and Mr. Brooks' residence at Assensole has enabled him to supply me with a list of birds seen or obtained by him in that vicinity.

Midnapur.—Mr. Blyth is the principal authority on the birds of this district. So far as I am aware he left no complete list of the birds observed by him there, but he wrote a brief sketch of the *facies* of the Avifauna.* In the year 1868 I paid a brief visit to Midnapur and collected a few birds there.

Manbhum.—Captain Beavan, as is well-known, worked this district, and in two papers, published in the P. Z. S.† and the *Ibis*‡, gave very complete accounts of the birds observed by him. I spent several seasons also in Manbhum before 1867, and on subsequent occasions I have made traverses across it.

Hazaribagh.—Of this district again the record is somewhat meagre. Colonel Tickell obtained a few birds there, as is mentioned in a paper by the Marquis of Tweedale.§

In 1864-65 I spent some months in this district; but at that time I had not commenced any systematic collection of birds.

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* J. A. S. B., Vol. XVI, pp. 117, 118, note.
† P. Z. S., 1868.
‡ *Ibis*, N. S., Vol. I, 1865; Vol. III., 1867; Vol. IV., 1868.
§ On Col. Tickell's manuscript work, *Ibis*, 3rd series, Vol.. VI, 1876, p. 336.

Subsequently, when *en route* to districts further west, I have traversed portions of Hazaribagh, and have thus had some opportunity for collecting and observing.

LOHARDUGGA.—Under this head I include Lohardugga Proper and the sub-division of Palamow. I had some thought of treating Palamow as a separate district, since I think I can discern an infusion of northern species which serves to differentiate its Avifauna from that of Lohardugga Proper. As this appearance may be due, however, in a considerable degree to the fact that Palamow has been worked more thoroughly than other parts of the district, I think it better not to make any separation at present.

I have had several opportunities for collecting in Lohardugga, and the past season 1877-78 I spent in Palamow, and was able to add a number of interesting species to previous lists. I have on former occasions acknowledged aid received from Mr. Levin, Manager of the Rogherra Coal Mines.

SINGHBHUM.—Colonel Tickell's collections in Dhulbhum and Borobhum are all included under this head, for although Borobhum strictly belongs to Manbhum at present, it was formerly, I believe, included in Singhbhum, and as the exact localities are sometimes doubtful, it will save a further heading to regard it as still belonging to that district. The season 1868-69 was spent by me in Singhbhum, and most of the birds collected are now in the Indian Museum.

SIRGUJA, &c.—Of this Native State, and those adjoining the sole record of the birds, is afforded by my collections and notes made during the seasons 1870-71 and 1871-72.

JASHPUR AND UDAIPUR.—Mr. Blanford has kindly put at my disposal the notes which he made on birds while marching through these States. I have small collections of my own too, which I made in them during the season 1871-72.

GANGPUR AND SARUNDA.—In 1871-72, and again in 1875, I traversed these States, and the notes and collections made on those occasions furnish the sole available material for a list of the birds.

BILASPUR.—With regard to the birds of this district, Mr. Blanford's notes and the museum catalogue furnish the only available information.

SAMBALPUR, NORTH OF MAHANADI, AND SAMBALPUR, SOUTH OF MAHANADI.—For these areas my own notes and collection afford the sole data. They were made between 1874 and 1877.

ORISSA, NORTH OF MAHANADI, AND ORISSA, SOUTH OF MAHANADI.—Blyth's Catalogue and Jerdon's Birds of India mention a few birds from the neighbourhood of Cuttack and some other

parts of Orissa. In the years 1875 and 1876, I had opportunities for collecting and observing in these areas.

RAIPUR.—Mr. Blanford traversed a portion of this area, and many of his specimens are now in the museum. From several of Mr. Hume's papers, published in STRAY FEATHERS and elsewhere, I have gleaned references to species found in Raipur. * Towards the middle of 1877 I made a speedy traverse of a part of Raipur, but only collected a very few birds.

NOWAGARH AND KARIAL.—These two Native States, which are subordinate to Raipur, were visited by me in 1876-77, when I made a collection and kept a list of birds seen.

KALAHANDI.—This State, which is subordinate to Sambalpur, was visited by me on the same occasion as the above, and collections and notes were made.

GUMSUR AND NORTH CIRCARS.—Jerdon's Birds of India furnishes the sole material for these two areas.

JAIPUR.—This State, which is subordinate to Vizagapatam, was visited by me early in the year 1877. I spent a few weeks there and collected, &c., as above.

BUSTAR.—This State, which is subordinate to Sironcha in the Central Provinces, was visited by Dr. Jerdon shortly before the mutiny. The results of his observations are alluded to in the pages of the Birds of India. A brief visit in 1877 enabled me to collect and observe a few species there.

GODAVERI VALLEY.—Mr. Blanford's notes, above referred to, contain the only information available on the birds of this area.

[RAIPUR, PHULJHUR, SAMBALPUR, SONEPUR, BOAD.—Mr. F. R. Blewitt collected for me vigorously in these localities for several years, chiefly in the first and third, and sent me thence many thousand specimens. Unfortunately a large proportion of these were indifferent, and were not pre-

* Mr. Hume has also promised to note the occurrence of any Sambalpur and Raipur species collected or received by him which I have not included. [I have done this very imperfectly. I have only attempted to deal with Raipur, Sambalpur, Sonepur and Boad, and have only made entries, where I actually now have specimens, in my museum, and recorded in my catalogue. Unfortunately by no means all my specimens are yet catalogued. It would take a month to complete this paper, even up to the specimens I actually have in the museum, and there are numbers of species of which I have had specimens from various parts of this region, no longer represented from these in the museum. I have added some 30 odd species, and a couple of hundred or so references, but I could have more than doubled these numbers had I dealt with the whole region, and doubled these again, had I gone not merely by specimens, but by notes made by myself and others. I say this because I would guard against this being supposed to be at all an exhaustive list, or concluding that because a species is not entered it does not occur; all Mr. Ball intends it for is as a basis from which something more complete may start, and as such, considering how little has as yet been written on this tract, every ornithologist will, I am sure, receive it with deep gratitude. It is these first starts that entail so much labour; it is comparatively easy later, to correct and complete. I must add that I doubt the correctness of some of the reported occurrences, *e. g.*, of *Rhopodytes viridirostris* in Midnapur; *Dicæum concolor*, in Belaspur, &c.—A. O. H.]

served. Hence, as my additions to the paper are solely based on specimens actually in the museum *now*, numbers of species procured by Mr. Blewitt in one or other of these localities have not been entered.—A. O. H.]

1.—Otogyps calvus, *Scop.* (2).*

Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Karial.

Not very common, but probably occurs throughout the sub-province.

†2.—Gyps fulvus, *Gmel.* (3).

Manbhum.

I have unfortunately omitted to ascertain the distribution of this Vulture and that of the two following species.

3.—Gyps indicus, *Scop.* (4).

Bardwan. [Raipur.—A. O. H.]

4.—Pseudogyps bengalensis, *Gmel.* (5).

Bardwan; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi.

5.—Neophron ginginianus, *Lath.* (6).

Bardwan; Midnapur; Lohardugga; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Orissa, south of Mahanadi; Nowagarh; Karial.

6.—Falco communis, *Gmel.* (8).

Singbhum. [Raipur; Sambalpur; Boad; Burpali.—A. O. H.]

I have seen the Peregrine Falcon in several of the districts, but have never obtained a specimen.

7.—Falco peregrinator, *Sund.* (9).

Raipur.

8.—Falco jugger, *Gray.* (11).

Manbhum; Singhbhum; Sirguja.

[385.—Falco babylonicus, *Gurney.* (12.)

Raipur.—A. O. H.]

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* The numbers in brackets are those in the "Birds of India," and Mr. Hume's list.

† There is no reason to believe that this species occurs *any* where in India, unless possibly in the extreme west. This entry is some mistake.—A. O. H.

[386.—**Falco subbuteo**, *Lin.* (13).

Raipur.—A. O. H.]

I have seen in Karial and elsewhere, a bird which I believe to have been the Hobby, *F. subbuteo*, Linn.

9.—**Falco chiquera**, *Daud.* (16).

Lohardugga; Sirguja; Sambalpur, north of Mahanadi.

10.—**Cerchneis tinnuncula**, *Linn.* (17).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orrisa, north of Mahanadi; Raipur; Nowagarh; Karial.

11.—**Astur trivirgatus**, *Reinw.* (22).

Manbhum; Singhbhum.

[387.—**Astur rufitinctus**, *McClell.* (22*bis*.)

Sambalpur; Sonepur.

The birds entered above as *trivirgatus* almost certainly belong to this the northern species.—A. O. H.]

12.—**Astur badius**, *Gmel.* (23).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Raipur; Nowagarh and Karial.

13.—**Accipiter nisus**, *Linn.* (24).

Manbhum; Singhbhum. [Raipur; Sonepur.—A. O. H.]

14.—**Accipiter virgatus**, *Temm.* (25).

Hazaribagh; Lohardugga.

15.—**Aquila mogilnik**, *Gmel.* (27).

Bardwan.

[388.—**Aquila nipalensis**, *Hodgs.* (27*bis*.)

Raipur; Sonepur.—A. O. H.]

16.—**Aquila clanga**, *Pall.* (28).

Raipur. [Sambalpur; Sonepur; Boad.—A. O. H.]

17.—**Aquila vindhiana**, *Frankl.* (29).

Singhbhum; Raipur.

18.—Aquila hastata, *Less.* (30).

Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi Raipur; Nowagarh and Karial.

I have, on several occasions, in different parts of the more hilly tracts of the area, seen a black or very dark Eagle, which, I believe, must have been *Neopus malaiensis*, Reinw.

Beavan probably alludes to the same bird, which he suggests may be *Milvus ater*, P. Z. S., 1868, p. 399.

[389.—Hieraetus pennatus, *Gm.* (31).

Raipur; Sambalpur, east and west of Mahanadi; Boad.—A. O. H.]

19.—Nisaetus fasciatus, *Vieill.* (33).

Lohardugga. [Raipur; Sambalpur; Boad.—A. O. H.]

[390.—Limnaetus caligatus, *Raffles.* (34).

Arung; Raipur District.

A single specimen outside, I should say, its normal range. —A. O. H.]

20.—Limnaetus cirrhatus, *Gmel.* (35).

Lohardugga; Godaveri Valley. [Raipur; Sambalpur.—A. O. H.]

Measurements of Lohardugga specimen, in flesh:—

♀ Length, 26; extent, 50; wing, 16·5; tail, 11·5; tarsus, 4·5. Iris, golden.

21.—Spizaetus lathami, *Lath* apud *Tick.* (35 *bis*).

Singhbhum (Sirdah Borobhum).*

This exceedingly troublesome title cannot be excluded from our list. As the Marquis of Tweedale has pointed out † it cannot from the measurements be made synonymous with *Baza lophotes*. *S. cirrhatus*, which I shot this year in Lohardugga, and was obtained by Mr. Blanford in the Godaveri, is, I believe, much more likely to have been the bird obtained by Tickell.‡

22.—Lophotriorchis kieneri, *Geoff. St. Hil.* (37).

Singhbhum.

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* I have, on a previous page, stated that Borobhum formerly belonged to Singhbhum; it is now included in Manbhum.

† *Ibis*, 1876, p. 340.

‡ His dimensions are too small for this, whereas they agree with those of the large Indian *Baza*, which I have called *incognita*, (S. F., III., 313) and which may possibly prove to be either *B. sumatrensis*, Lafres., or *B. jerdoni*, Blyth. One specimen of this has been received from as far north as Native Sikhim, so that Tickell may well have met with it in Singhbhum.—A. O. H.

23.—Circaetus gallicus, *Gmel.* (38).

Bilaspur. [Raipur.—A. O. H.]

24.—Spilornis melanotis, *Jerd.* (39 *bis*).

Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley. [Sambalpur, south and west of Mahanadi; Raipur.—A. O. H.]

Measurements in flesh of two specimens from Lohardugga :—
♂ Length, 25·5; extent, 59; wing, 18·5; tail, 12; tarsus, 4·5.
♀ Length, 25·5; extent, 58·5; wing, 18·6; tail, 11·6; tarsus, 4·5. Iris, orange-golden.

25.—Pandion haliaetus, *Linn.* (40).

Lohardugga. [Raipur; Sambalpur; Boad.—A. O. H.]

Measurements in flesh :—
♀ Length, 25·2; extent, 61·; wing, 19·5; tail, 9·; bill from gape, 2·5.

26.—Polioaetus ichthyaetus, *Horsf.* (41).

Rajmehal Hills; Manbhum.

27.—Haliaetus leucoryphus, *Pall.* (42).

Bardwan.

28.—Haliaetus leucogaster, *Gmel.* (43).

Manbhum; Lohardugga; Singhbhum.

[391.—Buteo ferox, *S. G. Gm.* (45).

Raipur.—A. O. H.]

29.—Butastur teesa, *Frankl.* (48).

Bardwan; Hazaribagh; Lohardugga; Sambalpur, north of Mahanadi; Godaveri Valley. [Raipur.—A. O. H.]

30.—Circus macrourus, *S. G. Gm.* (51).

Rajmehal Hills; Manbhum; Hazaribagh; Singhbhum; Sambalpur, north of Mahanadi; Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

31.—Circus cineraceus, *Mont.* (52).

Sirguja; Bilaspur; Raipur; Godaveri Valley.

32.—Circus melanoleucus, *Gmel.* (53).

Bardwan; Hazaribagh; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur, Sambalpur, south and west of Mahanadi; Sonepur; Boad.—A. O. H.]

33.—Circus æruginosus, *Linn.* (54).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Raipur.—A. O. H.]

34.—Haliastur indus, *Bodd.* (55).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi ; Sambalpur, south of Mahanadi ; Orissa, north of Mahanadi ; Raipur ; Nowagarh and Karial ; Godaveri Valley.

35—Milvus govinda, *Sykes.* (56).

Rajmehal Hills ; Bardwan ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Sambalpur, south and west of Mahanadi.—A. O. H.]

36.—Milvus melanotis, *Temm.* et *Schl.* (56 *bis.*)

Bardwan ; Hazaribagh ; Lohardugga ; Sirguja ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Kalahandi ; Godaveri Valley. [Raipur ; Sambalpur, whole district.—A. O. H.]

[392.—Milvus affinis, *Gould.* (56 *ter*).

Raipur ; Sambalpur, east and west of Mahanadi.—A. O. H.]

37.—Pernis ptilorhynchus, *Temm.* (57).

Rajmehal Hills ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Orissa, south of Mahanadi ; Nowagarh and Karial ; Jaipur ; Godaveri Valley.

38.—Elanus cæruleus, *Desf.* (59).

Manbhum ; Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Raipur ; Nowagarh and Karial.

39.—Strix javanica, *Gm.* (60).

Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Raipur.

40.—Strix candida, *Tick.* (61).

Singhbhum. [Raipur.—A. O. H.]

41.—Syrnium ocellatum, *Less.* (65).

Sambalpur, north of Mahanadi ; Raipur ; Godaveri Valley. [Boad.—A. O. H.]

42.—Asio accipitrinus, *Pall.* (65).

Manbhum ; Sambalpur, north of Mahanadi.

43.—Bubo bengalensis, *Frankl.* (69).

Manbhum ; Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Raipur.—A. O. H.]

44.—Bubo coromandus, *Lath.* (70).

Manbhum ; Bilaspur ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi. [Raipur.—A. O. H.]

45.—Ketupa ceylonensis, *Gmel.* (72).

Lohardugga ; Sirguja ; Bilaspur ; Sambalpur, north of Mahanadi ; Raipur ; Godaveri Valley.

46.—Scops pennatus, *Hodg.* (74).

Manbhum ; Gangpur ; Sambalpur, north of Mahanadi. [Raipur.—A. O. H.]

Other species very possibly occur. Beavan gives *S. lempiji* from Manbhum. As it is uncertain what his bird may have been, I cannot do more than mention it in this way.

[393.—Scops sunia, *Hodgs.* (74*bis*.)

Raipur.—A. O. H.]

[394.—Scops indicus, *Gm.* (75*ter*.)

Sambalpur ; Raipur, *where very* abundant.—A. O. H.]

47.—Carine brama, *Temm.* (77).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Sambalpur, south of Mahanadi ; Nowagarh and Karial ; Godaveri Valley.

48.—Carine (Heteroglaux) blewitti, *Hume.* (76 *bis*).

Sambalpur, north of Mahanadi ; Karial.

49.—Glaucidium radiatum, *Tick.* (77).

Rajmehal Hills ; Manbhum ; Hazaribagh ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Sambalpur, south of Mahanadi ; Orissa, north of Mahanadi ; Jaipur. [Raipur.—A. O. H.]

50.—Glaucidium cuculoides, *Vigors.* (79).

Rajmehal Hills.

I met with but one example which may have been a straggler, but the regular occurrence of the species there would not be matter for much surprise.*

51.—Ninox lugubris, *Tick.* (81).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Sambalpur, south of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Jaipur ; Bustar. [Raipur.—A. O. H.]

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* I have obtained this in the southern portion of the Mirzapur District.—A. O. H.

52.—Hirundo rustica, *Linn.* (82).

Midnapur ; Manbhum ; Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Raipur.—A. O. H.] *

53.—Hirundo filifera, *Steph.* (84).

Rajmehal Hills ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Orissa, south of Mahanadi. [Raipur.—A. O. H.]

54.—Hirundo erythropygia, *Sykes.* (85).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Jashpur and Udaipur ; Sambalpur, north of Mahanadi ; Raipur ; Nowagarh and Karial.

55.—Hirundo fluvicola, *Jerd.* (86).

Godaveri Valley.

56.—Cotyle sinensis, *Gray.* (89).

Sambalpur, north of Mahanadi. [Raipur.—A. O. H.]

57.—Chelidon urbica, *Linn.* (92).

Bilaspur, (Blanf.)

58.—Chætura sylvatica, *Tick.* (95).

Singhbhum ; Sirguja ; Jashpur ; Gangpur ; Bilaspur ; Sambalpur, north of Mahanadi. [Raipur.—A. O. H.]

59.—Cypselus melba, *Linn.* (98).

Singhbhum ; Godaveri Valley. [Raipur.—A. O. H.]

60.—Cypselus affinis, *Gray.* (100).

Manbhum ; Lohardugga ; Bilaspur ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi.

61.—Cypselus batassiensis, *J. E. Gr.* (102).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Sambalpur, south and west of Mahanadi ; Raipur.—A. O. H.]

62.—Dendrochelidon coronatus, *Tick.* (104).

Rajmehal Hills ; Manbhum ; Hazaribagh ; Singhbhum ; Sirguja ; Jashpur and Udaipur ; Gangpur ; Bilaspur ; Sambalpur, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Raipur.—A. O. H.]

63.—Caprimulgus indicus, *Lath.* (107).

Lohardugga ; Sirguja ; Sambalpur ; north of Mahanadi. [Raipur.—A. O. H.]

* But all my specimens from this region are either *gutturalis*, or nearer this than *rustica* ; see. S. F., VI., 41.—A. O. H.

[395.—Caprimulgus kelaarti, *Blyth.* (108).

Raipur.—A. O. H.]

64.—Caprimulgus albonotatus, *Tick.* 109.

Manbhum ; Lohardugga ; Singhbhum. [Raipur.—A. O. H.]

65.—Caprimulgus atripennis, *Jerd.* (111).

Godaveri Valley, (*Blanf.*)

66.—Caprimulgus asiaticus, *Lath.* (112).

Rajmehal Hills ; Manbhum ; Lohardugga ; Sambalpur, north of Mahanadi ; Raipur ; Nowagarh and Karial ; Godaveri Valley.

67.—Caprimulgus monticolus, *Frank.* (114).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Jashpur ; Sambalpur, north of Mahanadi ; Raipur ; Nowagarh and Karial ; Godaveri Valley. [Sambalpur, south of Mahanadi ; Phuljhur.—A. O. H.]

68.—Harpactes fasciatus, *Gmel.* (115).

Singbhum ; Sambalpur, north of Mahanadi ; Kalahandi ; Jaipur ; Godaveri Valley.

69.—Merops viridis, *Linn.* (117).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial.

70.—Merops philippinus, *Linn.* (118).

Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi ; Raipur.

71.—Merops swinhoei, *Hume.* (119).

Sirguja.

This species must be very rare throughout the sub-province.

[396.—Nyctiornis athertoni. *Jard and Selb.* (122).

Sambalpur.—A. O. H.]

72.—Coracias indica, *Linn.* (123).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Raipur ; Nowagarh and Karial.

73.—Pelargopsis gurial, *Pears.* (127).

Rajmehal Hills ; Lohardugga ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; North Circars. [Sambalpur, south and west of Mahanadi ; Raipur.—A. O. H.]

74.—Halcyon smyrnensis, *Bodd.* (129).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

75.—Alcedo bengalensis, *Gmel.* (134).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Godaveri Valley.

76.—Alcedo beavani, *Wald.* (134 *bis*).

Rajmehal Hills; Manbhum. [Cuttack.—A. O. H.]

77.—Ceryle rudis, *Linn.* (136).

Rajmehal Hills; Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Raipur; Nowagarh and Karial.

78.—Hydrocissa coronata, *Bodd.* (141).

Manbhum; Lohardugga; Singhbhum; Sirguja; Bilaspur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Nowagarh and Karial; Gumsur. [Raipur.—A. O. H.]

79.—Hydrocissa albirostris, *Shaw.* (142).

Rajmehal Hills (Jerd.); Midnapur (Jerd.); Gangpur.

Measurement of skin:—

* Gangpur ♂ Wing, 12·8; tail, 12; bill from point to gape direct, 5·2.

The distribution of the black markings on the mandibles is, as described for this species by Jerdon, not as in *affinis*.

It corresponds in this respect with a specimen from Burmah in my collection, which measures:—

Wing, 11; tail, 11; bill from point to gape direct, 5. On the other hand a specimen from Assam has an altogether different-shaped bill and casque, and has the black markings as described by Jerdon for *affinis*. It measures:—

Wing, 11·8; tail, 12·2; bill from front to gape direct, 5·4.

I believe the Gangpur specimen, therefore, to be true *albirostris*.

Beavan's specimen from Manbhum, according to the Museum Catalogue, is *coronata*, not *albirostris*, as he supposed.

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* Though I do not alter this, it is I think a mistake; the dimensions of the wing given, *viz.*, 12·8, show clearly that the specimen is *affinis*; in over 50 specimens of *albirostris*, no wing exceeded 11·12. For full particulars of both species see. S. F., VI., pp. 100-103. Black markings and size and shape of bills vary in both species according to age and sex. All the specimens that I have examined from Midnapur and the Rajmehal hills have been *affinis*.—A. O. H.

[397.—Hydrocissa affinis, *Hutton.* (143).

Midnapur.

A young female with the wing 11·2; weight, 2lbs 2 oz. In *albirostris*, the wing in the largest female measured out of 27, was 10·5; the weight, 1·5lbs.—A. O. H.]

80.—Ocyceros birostris, *Scop.* (144).

Rajmehal Hills; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

81.—Palæornis eupatrius,* *Linn.* (147).

Rajmehal Hills; Bardwan; Midnapur; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; North Circars. [Raipur.—A. O. H.]

82.—Palæornis torquatus, *Bodd.* (148).

Manbhum; Hazaribagh; Lohardugga; Singhbhum; Sirguja; Sambalpur, of Mahanadi; Sambalpur, south of Mahanadi; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Nowagarh and Karial.

83.—Palæornis purpureus, *Müll.* (149).

Rajmehal Hills; Midnapur; Manbhum; Lohardugga; Sirguja and Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley.

84.—Picus mahrattensis, *Lath.* (160).

Rajmehal Hills; Bardwan; Midnapur; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Bilaspur; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Raipur; Nowagarh and Karial; Godaveri Valley.

85.—Yungipicus nanus, *Vig.* (164).

Hazaribagh; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

86.—Chrysocolaptes delesserti, *Malh.* (166*bis*).

Singhbhum.

Only found by Tickell, who, however, speaks of it as being common.

* This name is all right for those who agree to lump all our Indian, Burmese and Andamanese races of this form. But it must be understood that the birds of this region are not the small green Ceylon form, but the large form (*siwalensis*, Hutton) with the nape and sides of the head suffused with glaucous grey, and quite as distinct from the Ceylon form as is the Andamanese *magnirostris*, Ball, which I hold to be a good species.—A. O. H.]

87.—Chrysocolaptes festivus, *Bodd.* (167).

Midnapur; Lohardugga; Sambalpur, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

88.—Gecinus striolatus, *Blyth.* (171).

Lohardugga; Sirguja; Bilaspur; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Nowagarh and Karial; Godaveri Valley.

89.—Chrysophlegma chlorolophus, *Vieill.* (174).

Orissa, south of Mahanadi; (Cuttack* in Blyth's Cat.); ? Lohardugga.

The Lohardugga specimen, I heard of from Mr. Levin. I did not see it, but from the description I have no doubt that it was this species.

90.—Micropternus phaioceps, *Blyth.* (178).

Rajmehal Hills; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Orissa, north of Mahanadi; Bustar.

91.—Brachypternus aurantius, *Linn.* (180).

Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Jaipur; Godaveri Valley. [Raipur.—A. O. H.]

92.—Chrysonotus shorei, *Vigors.* (184).

Gumsur, Blyths' Cat. No. 253.

93.—Yunx torquilla, *Linn.* (188).

Bardwan; Manbhum; Lohardugga; Sirguja.

This bird is rather common in Lohardugga, especially in the vicinity of the civil station of Daltonganj.

94.—Megalæma caniceps, *Frankl.* (193).

Rajmehal Hills; Midnapur; Manbhum; Lohardugga; Singhbhum; Bilaspur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Raipur; Nowagarh and Karial; Kalahandi; Gumsur; Jaipur; Godaveri Valley.

95.—Xantholæma hæmacephala, *Müll.* (197).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

96.—Cuculus canorus, *Lin.* (199).

Midnapur; Lohardugga; Sirguja; Jashpur; Nowagarh and Karial; Gumsur. [Raipur.—A. O. H.]

* I think it possible that there is some mistake here.—A. O. H.

[398.—**Cuculus sonnerati**, *Lath.* (202).

Raipur.—A. O. H.]

97.—**Cuculus micropterus**, *Gould.* (203).

Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Lohardugga ; Chota Nagpur, a young example figured in Tickell's Manuscript.)

98.—**Hierococcyx varius**, *Vahl.* (205).

Rajmehal Hills ; Birbhum ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Raipur ; Nowagarh and Karial ; Jaipur.

99.—**Hierococcyx sparveroides**, *Vigors.* (207).

Raipur.

I believe I have seen this bird in Orissa.

100.—**Cacomantis passerinus**, *Vahl.* (208).

Manbhum ; Singhbhum ; Orissa, south of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Raipur ; Sonepur.—A. O. H.]

[399.—**Cacomantis threnodes**, *Cab.* (209).

Raipur.

A single specimen. See. S. F., VI., 158.—A. O. H.]

101.—**Surniculus lugubris**, *Horsf.* (210).

Godaveri Valley. [Raipur.—A. O. H.]

So far this species has been obtained by Blanford only, in the extreme S. W. of the area.

102.—**Coccystes jacobinus**, *Bodd.* (212).

Birbhum ; Lohardugga.

103.—**Eudynamys honorata**, *Lin.* (214).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Sampalpur, north of Mahanadi. [Raipur.—A. O. H.]

104.—**Rhopodytes tristis**, *Less.* (215).

Gumsur.

105.—**Rhopodytes viridirostris**, *Jerd.* (216).

Midnapur ; Orissa, north of Mahanadi ; Godaveri Valley.

106.—**Centrococcyx rufipennis**, *Ill.* (217).

Rajmehal Hills ; Manbhum ; Hazaribagh ; Lohardugga ; Singhbhum ; Gangpur and Samuda ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ;

Nowagarh and Karial; Godaveri Valley. [Raipur; Sambalpur, south and west of Mahanadi.—A. O. H.[

The Marquis of Tweedale has suggested that a specimen figured by Tytler* from Hazaribagh with a colored interscapular region possibly belongs to *C. intermedius*, Hume. None of the many specimens, living and dead, which I have examined, were of this type.

107.—Centrococcyx bengalensis, *Gmel.* (218).

Singhbhum; Orissa, north of Mahanadi; Cuttack.

I have never met with this bird myself.

108.—Taccocua affinis, *Blyth.* (222).

Rajmehal Hills; Birbhum; Midnapur; Manbhum; Lohardugga; Sirguja; Sambalpur, north [and south.—A. O. H.] of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Jaipur; Godaveri Valley. [Raipur. —A. O. H] †

I find I was in error in supposing that I had obtained *sirkee* in Chutia Nagpur. All my specimens are of *affinis*, though there are differences in the coloration of the tibial plumes.

109.—Æthopyga seheria, *Tick.* (225).

Singhbhum; (Seheria in Borobhum).

As I have already recorded, I on one occasion saw an *Æthopyga* in Lohardugga near the village of Jona.

110.—Leptocoma zeylonica, *Linn.* (232).

Bardwan; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Godaveri Valley. [Raipur; Sambalpur, south and west of Mahanadi.—A. O. H.]

111.—Arachnecthra asiatica, *Linn.* (234).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Nowagarh and Karial; Godaveri Valley. [Raipur; Sambalpur, south and west of Mahanadi.—A. O. H.]

112.—Dicæum minimum, *Tick.* (238).

Manbhum; Lohardugga; Singhbhum; Bilaspur; Sambalpur, north of Mahanadi; Nowagarh and Karial; Kalahandi; Godaveri Valley.

113.—Dicæum concolor, *Jerd.* (239).

Bilaspur, (*Blanf*).

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* ? Tickell?—Ed.

† I cannot separate the birds of this region at present from the Southern *T. leschenaulti*, by which name they ought, I think, to stand. See. S. F., V, 218-9.—A. O. H.

114.—Piprisoma agile, *Tick.* (240).

Midnapur; Manbhum; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

115.—Salpornis spilonota, *Frankl.* (246).

Lohardugga; Sambalpur, south of Mahanadi; Godaveri Valley. [Raipur.—A. O. H.]

116.—Sitta castaneiventris, *Frankl.* (250).

Rajmehal Hills; Lohardugga; Singhbhum; Sirguja; Gangpur and Samuda; Sambalpur, south of Mahanadi; Gumsur; Northern Circars; Godaveri Valley. [Raipur.—A. O. H.]

117.—Dendrophila frontalis, *Horsf.* (253).

Singhbhum; Jashpur and Udaipur; Gumsur.

118.—Upupa epops, *Linn.* (254).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Jaipur.

119.—Lanius lahtora, *Sykes.* (256).

Rajmehal Hills; Manbhum; Lohardugga.

Very rare in the two last-named localities.

120.—Lanius erythronotus, *Vigors.* (257).

Lohardugga; Sambalpur, north of Mahanadi.

121.—Lanius caniceps, *Blyth.* (257 *bis*).

? Rajmehal Hills.

122.—Lanius tephronotus, *Vigors.* (258).

Rajmehal Hills; Birbhum.

123.—Lanius nigriceps, *Frankl.* (259).

Rajmehal Hills; Birbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Nowagarh and Karial; Jaipur. [Raipur.—A. O. H.]

124.—Lanius vittatus, *Vigors.* (260).

Rajmehal Hills; Midnapur; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

125.—Lanius cristatus, *Linn.* (260).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Orissa, north of Mahanadi; Jaipur. [Raipur.—A. O. H.]

[400.—Lanius isabellinus, *Hemp and Ehr.* (262).

Raipur.

A single young bird, a straggler. A few always get as far as Seoni, but only very rarely one gets as far east as Raipur.—A. O. H.]

126.—Tephrodornis pondicerianus, *Gmel.* (265).

Manbhum ; Hazaribagh ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north [and south.—A. O. H.] of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial.

127.—Hemipus picatus, *Sykes* (267).

Singhbhum.

This is the only locality where this species has hitherto been found. Specimens were obtained by both Col. Tickell and myself.

128.—Volvocivora sykesii, *Strick.* (268).

Rajmehal Hills ; Lohardugga ; Gumsur ; Bustar ; Godaveri Valley. [Raipur.—A. O. H.]

129.—Volvocivora melaschistus, *Hodgs.* (269).

Manbhum ; Lohardugga ; Sambalpur, north of Mahanadi [and south ; Raipur.—A. O. H.]

130.—Graucalus macei, *Less.* (270).

Rajmehal Hills ; Manbhum ; Hazaribagh ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Raipur ; Nowagarh and Karial ; Jaipur ; Godaveri Valley.

131.—Pericrocotus speciosus, *Lath.* (271).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Sambalpur, south of Mahanadi ; Orissa, north of Mahanadi ; Orissa, south of Mahanadi ; Nowagarh and Karial ; Kalahandi ; Gumsur ; Jaipur ; Bustar ; Godaveri Valley.

132.—Pericrocotus brevirostris, *Vig.* (273).

Manbhum ; Singhbhum ; Sambalpur, north of Mahanadi ; Gumsur.

133.—Pericrocotus roseus, *Vieill.* (275).

Gumsur ; Jaipur ; Godaveri Valley.

134.—Pericrocotus peregrinus, *Linn.* (276).

Rajmehal Hills ; Manbhum ; Hazaribagh ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Sambalpur, south of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Jaipur ; Bustar.

135.—Pericrocotus erythropygius, *Jerd.* (277).

Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi. [Raipur.—A. O. H.]

136.—Buchanga atra, *Herm.* (278). *B. albirictus*, Hodg.

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Jaipur ; Godaveri Valley. [Raipur.—A. O. H.]

137.—Buchanga longicaudata, *A. Hay.* (280).

Rajmehal Hills. [Sambalpur.—A. O. H.]

138.—Buchanga cærulescens, *Linn.* (281).

Rajmehal Hills ; Manbhum ; Hazaribagh ; Lohardugga ; Singhbhum ; Sirguja ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley.

139.—Chaptia ænea, *Vieill.*

Bustar (*Jerd.*)

140.—Dissemurus grandis, *Gould.* (284).

Rajmehal Hills ; Manbhum ; Lohardugga ; Sambalpur, north [and south.—A. O. H.] of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Gumsur ; Godavery Valley. [Raipur.—A. O. H.]

141.—Chibia hottentotta, *Linn.* (286).

Manbhum ; Singhbhum ; Sambalpur, north of Mahanadi [and south of do., Raipur.—A. O. H.]

142—Artamus fuscus, *Vieill.* (287).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Nowagarh and Karial ; Northern Circars ; Godaveri Valley

143.—Muscipeta paradisi, *Linn.* (288).

Rajmehal Hills ; Borobhum ; Manbhum ; Hazaribagh ; Lohardugga ; Jashpur ; Gangpur ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Raipur ; Nowagarh and Karial ; Godaveri Valley.

144.—Hypothymis azurea, *Bodd.* (290).

Rajmehal Hills ; Birbhum ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Orissa, south of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Raipur.—A. O. H.]

145.—Leucocerca albicollis, *Vieill.* (291).

Manbhum ; Lohardugga ; Jashpur ; Sambalpur, north of Mahanadi ; Raipur ; Godaveri Valley. [Boad.—A. O. H.]

146.—Leucocerca albofrontata, *Frankl.* (292).

Rajmehal Hills ; Hazaribagh ; Lohardugga ; Sirguja ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Raipur.—A. O. H.]

[401.—**Leucocerca leucogaster**, *Cuv.* (293).

Raipur.

A single specimen.—A. O. H.]

147.—**Culicicapa ceylonensis**, *Sw.* (295).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

148.—**Alseonax latirostris**, *Raffles.* (297).

Manbhum; Singhbhum; Bilaspur.

149.—**Eumyias melanops**, *Vigors.* (301).

Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi.

150.—**Cyornis rubeculoides**, *Vigors.* (304).

Rajmehal Hills; Orissa, north of Mahanadi.

151.—**Cyornis tickelliæ**, *Blyth.* (305 & 306).

Midnapur; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley.

[402.—**Cyornis ruficauda**, *Swains.* (307).

Raipur.—[A. O. H.]

152.—**Muscicapula superciliaris**, *Jerd.* (310).

Midnapur; Manbhum; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Kalahandi. [Raipur.—A. O. H.]

153.—**Muscicapula astigma**, *Hodg.* (311).

Bardwan; *(Brooks).*

154.—**Erythrosterna albicilla**, *Pallas.* (323).

Rajmehal Hills; Bardwan; Hazaribagh; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

155.—**Erythrosterna parva**, *Bechst.* (323 *bis*).

Singhbhum.

156.—**Erythrosterna maculata**, *Tick.* (326); and *E. pusilla*, Blyth, (324) the ♀.

Rajmehal Hills; Midnapur; Manbhum; Singhbhum.

After comparison I am inclined to agree with Mr. Brooks in regarding *E. pusilla* to be only the female of *E. maculata*.

157.—**Myiophoneus horsfieldi**, *Vigors.* (343).

Sirguja; Sambalpur, north of Mahanadi.

158.—Pitta brachyura, *Lin.* (345).

Sirguja; Lohardugga; Gangpur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

159.—Cyanocincla cyana, *Linn.* (351).

Rajmehal Hills; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Bilaspur; Orissa, north of Mahanadi; Nowagarh and Karial.

160.—Geocichla cyanotis, *J. & S.* (354).

Sirguja; Sambalpur, north of Mahanadi; Gumsur. [Raipur.—A. O. H.]

161.—Geocichla citrina, *Lath.* (355).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Gumsur. [Raipur; Sonepur; Boad.—A. O. H.]

162.—Geocichla unicolor, *Tick.* (356).

Rajmehal Hills; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi. [Raipur.—A. O. H.]

[403.—Merula nigropileus, *Lafres.* (359).

Raipur; Sambalpur.—A. O. H.]

163.—Planesticus atrogularis, *Tem.* (365).

Rajmehal Hills.

This species can hardly be said to belong to the sub-province, but it probably, occasionally, visits the northern districts; since, according to Blyth, as quoted by Jerdon, it has even been shot at Barrackpur.

164.—Oreocincla dauma, *Lath.* (371).

Rajmehal Hills; Manbhum; Sirguja; Sambalpur, north [and south.—A. O. H.] of Mahanadi; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Kalahandi. [Raipur; Phuljhur.—A. O. H.]

165.—Pyctorhis sinensis, *Gmel.* (385).

Birbhum; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Bilaspur; Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

166.—Mixornis rubricapillus, *Tick.* (395).

Manbhum; Singhbhum.

167.—Dumetia hyperythra, *Frankl.* (397).

Midnapur; Manbhum; Lohardugga; Sirguja; Bilaspur; Raipur; Nowagarh and Karial; Godaveri Valley.

168.—Pellorneum ruficeps, *Swains.* (399).

Rajmehal Hills; Manbhum.

169.—Pomatorhinus horsfieldi, *Sykes.* (404).

Orissa, south of Mahanadi; Gumsur.

170.—Malacocircus terricolor, *Hodg.* (432).

Rajmehal Hills; Manbhum; Hazaribagh; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Nowagarh and Karial; Gumsur. [Raipur.—A. O. H.]

171.—Malacocircus griseus, *Gmel.* (433).

Northern Circars; Godaveri Valley.

172.—Malacocircus malabaricus, *Jerd.* (434).

Bilaspur; Raipur; Godaveri Valley.

The two preceding species should not, I believe, be regarded as belonging properly to the fauna of the sub-province.

173.—Chatorhea caudata, *Dum.* (438).

Hazaribagh; Lohardugga; Bilaspur; Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

Very abundant in the above districts. Absent or extremely rare in the others.

174.—Megalurus palustris, *Horsf.* (440).

Sambalpur, north of Mahanadi. [do. south of do.; Boad; Sonepur.—A. O. H.]

Only seen in the *Tamarix* bushes in the rocky bed of the Mahanadi, near Sambalpur.

[404.—Chaetornis striata, *Jerd.* (441).

Sambalpur, north and south of Mahanadi; Raipur.—A. O. H.]

175.—Ixos luteolus, *Less.* (452).

Midnapur; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Kalahandi; Gumsur; Godaveri Valley.

176.—Rubigula flaviventris, *Tick.* (456).

Singhbhum, (*Tick*); Orissa, south of Mahanadi; Kalahandi.

177.—Otocompsa emeria, *Shaw.* (460).

Rajmehal Hills; Birbhum; Manbhum; Orissa, north of Mahanadi; Orissa south of Mahanadi; Kalahandi; Northern Circars.

178.—Pycnonotus pygæus, *Hodgs.* (461).

Rajmehal Hills; Midnapur.

The four preceding species belong to the Eastern Zone of our tract, the occurrence of *Rubigula flaviventris* so far to the west as Singhbhum being exceptional.

179.—Pycnonotus hæmorrhous, *Gmel.* (462).

Bardwan; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Gumsur; Godaveri Valley.

180.—Phyllornis jerdoni, *Blyth.* (463).

Rajmehal Hills; Bardwan; Midnapur; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Bilaspur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Kalahandi; Jaipur. [Raipur.—A. O. H.]

181.—Phyllornis aurifrons, *Temm.* (465).

Rajmehal Hills; Midnapur; Manbhum; Lohardugga; Sirguja; Kalahandi; Gumsur.

182.—Iora tiphia, *Linn.* (468).

Rajmehal Hills; Hazaribagh; Lohardugga; Singhbhum; Bilaspur; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Orissa, north of Mahanadi; Orissa, south of Mahanadi; Nowagarh and Karial; Jaipur, Bustar; Godaveri Valley. [Raipur.—A. O. H.]

183.—Iora nigrolutea, *Marshall.* (468 *bis.*)

Hazaribagh; Lohardugga; Sambalpur, south of Mahanadi.

Although I have collected a large number of *Æ. tiphia* in various districts, I never obtained any examples of the present species until after its discrimination by Captain Marshall. In 1876-77, I shot a male and female in Sambalpur, and during the past season three males in Lohardugga and one female in Hazaribagh. In all these districts *Æ. tiphia* is very common. They are, I believe, the only parts of India where both species are found living together.

184.—Oriolus kundoo, *Sykes.* (470).

Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Raipur; Jaipur; Godaveri Valley.

185.—Oriolus indicus, *Briss.* (471).

Rajmehal Hills.

186.—Oriolus melanocephalus, *Linn.* (472).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Singhbhum; Sirguja; Gangpur and Samuda; Bilaspur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Raipur; Nowagarh and Karial; Godaveri Valley.

187.—Copsychus saularis, *Linn.* (475).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

188.—Cercotrichas macrurus, *Gmel.* (476).

Rajmehal Hills; Midnapur; Manbhum; Lohardugga; Singhbhum; Gangpur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

189.—Thamnobia cambaiensis, *Linn.* (480).

Rajmehal Hills; Midnapur; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley.

T. fulicata was obtained by Blanford in Ellore just beyond the southern frontier of the sub-province.

190.—Pratincola caprata, *Linn.* (481).

Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Raipur; Godaveri Valley.

191.—Pratincola indica, *Blyth.* (483).

Rajmehal Hills; Bardwan; Manbhum; Hazaribagh; Lohardugga; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi; Nowagarh and Karial.

P. leucura occurs in the Ganges Valley just outside the northern boundary of the sub-province.

192.—Ruticilla rufiventris, *Vieill.* (497).

Rajmehal Hills; Manbhum; Hazaribagh; Lohardugga; Sirguja; Sambalpur, north [and south.—A. O. H.] of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

193.—Larvivora superciliaris, *Jerd.* (507).

Manbhum.

This bird I shot in April 1869. I believe it to have been a straggler, and that the species does not regularly migrate into these regions. The specimen is now in the Indian Museum.

194.—Calliope camtschatkensis, *Gmel.* (512).

Lohardugga; Singhbhum; Sambalpur, north of Mahanadi. [Do. south of do.; Raipur; Sonepur; Boad.—A. O. H.]

195.—Cyanecula suecica, *Linn.* (514).

Midnapur; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Nowagarh and Karial; Kalahandi. [Raipur.—A. O. H.]

196.—Acrocephalus stentorius, *Hemp. & Ehr.* (515).

Godaveri Valley. [Raipur.—A. O. H.]

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197.—Acrocephalus dumetorum, *Blyth.* (516).

Manbhum ; Lohardugga ; Singhbhum ; Bilaspur ; Godaveri Valley. [Raipur ; Sambalpur, north and south of Mahanadi.—A. O. H.]

[405.—Acrocephalus agricolus, *Jerd.* (517).

Raipur.—A. O. H.]

198.—Orthotomus sutorius, *Forst.* (530).

Bardwan ; Manbhum ; Lohardugga ; Sambalpur, north of Mahanadi ; Godaveri Valley. [Raipur.—A. O. H.]

199.—Prinia socialis,* *Sykes.* (534).

Lohardugga ; Godaveri Valley.

Measurements of two specimens in my collection.
Lohardugga ♂.—Wing, 2·; tail, 2·9 ; bill from gape, 5·75.
Satpura Hills.—Wing, 2 ; tail, 2·8 ; bill from gape, 6.
Both the above have a strongly marked superciliary white line† which extends from behind the nostril to the hind angle of the eye. A specimen of what I take to be *stewarti* from Etawah has no sign of this line. This last has the tail only 2·4, though, according to Jerdon, *stewarti* should have the longer tail.

200.—Prinia gracilis,‡ *Frankl.* (536).

Midnapur ; Hazaribagh ; Lohardugga ; Singhbhum ; Godaveri Valley. [Sambalpur, north and south of Mahanadi ; Raipur.—A. O. H.]

201.—Prinia hodgsoni, *Blyth.* (538).

Hazaribagh ; Lohardugga ; Sambalpur, north of Mahandi. [Raipur.—A. O. H.]

202.—Cisticola cursitans, *Frankl.* (539).

Bardwan ; Lohardugga ; Sambalpur, north of Mahanadi ; Godaveri Valley.

203.—Drymoica inornata, *Sykes.* (543).

Bardwan ; Lohardugga ; Orissa, north [and south.—A. O. H.] of Mahanadi ; Godaveri Valley. [Raipur.—A. O. H.]

[406.—Drymoica rufescens, *Hume.* (544 *bis*).

Raipur ; Sambalpur, entire district.—A. O. H.]

[407.—Drymoica insignis, *Hume.* (545 *bis*).

Raipur ; Sambalpur, entire district.

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* I expect these birds are *stewarti*, if the two races, which differ only in size are to be accepted as distinct.—A. O. H.

† This question of the supercilium is fully discussed, S. F., IV., 497. *q. v.*—A. O. H.

‡ Mr. Brooks is inclined to believe that this is only the breeding plumage of *P. hodgsoni.*, I will discuss all these Prinias and Drymoipi fully next year.—A. O. H.

I have long suspected that these two were only the winter and summer plumages of the same species. The only difficulty is, that certain correspondents have reported having obtained *both* forms breeding, whereas only *insignis* should have been found breeding. It is a precisely parallel case to that of *inornatus* and *longicaudatus* I believe, and Mr. Brooks has recently strongly urged this again. He has collected a further large series, young and old, and next year I hope to discuss the whole group fully.—A. O. H.]

204.—Drymoica neglecta, *Jerd.* (546).

Rajmehal Hills; Bardwan; Lohardugga; Singhbum; Raipur.

205.—Franklinia buchanani, (551).

Lohardugga.

One specimen only shot in the sub-division of Palamow during last season, 1877-78.

206.—Hypolais rama, *Sykes.* (553).

Manbhum; Lohardugga; Orissa, north of Mahanadi; Godaveri Valley. [Raipur.—A. O. H.]

[408.—Hypolais caligata, *Licht.* (553 *bis*).

Raipur.—A. O. H.]

207.—Phylloscopus tristis, *Blyth.* (554).

Midnapur; Lohardugga; Singhbhum; Orissa, north of Mahanadi. [Raipur. —A. O. H.]

208.—Phylloscopus viridanus, *Blyth.* (560).

Bardwan; Lohardugga; Sambalpur, north of Mahanadi; Sambalpur, south of Mahanadi. [Raipur.—A. O. H.]

209.—Phylloscopus affinis, *Tick.* (561).

Singhbhum; Sambalpur, north of Mahanadi. [Raipur.—A. O. H.]

210.—Reguloides occipitalis, *Jerd.* (563).

Singhbhum. [Raipur.—A. O. H.]

211.—Reguloides superciliosus.*

Bardwan; Lohardugga. [Raipur; Sambalpur.—A. O. H.]

212—Abrornis cantator, *Tick.* (570).

Singhbhum.

* Probably the brown form *R. humei*, Brooks, from Lohardugga; at any rate it is this form alone that I have from Raipur and Sambalpur.—A. O. H.

213.—Sylvia jerdoni, *Blyth.* (581).

Manbhum, (*Beav.*) [Raipur.—A. O. H.]

214.—Sylvia affinis, *Blyth.* (582).

Lohardugga; Nowagarh and Karial.

215.—Motacilla maderaspatana, *Briss.* (589).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Godaveri Valley.

216.—Motacilla luzoniensis, *Scop.* (590).

Rajmehal Hills; Bardwan; Manbhum; Hazaribagh; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi.

217.—Motacilla dukhunensis, *Sykes.* (591*bis*).

Rajmehal Hills; Bardwan; Singhbhum. [Raipur; Sambalpur.—A. O. H.]

218.—Motacilla personata, *Gould.* (591).

Bardwan; Godaveri Valley. [Raipur; Sambalpur.—A. O. H.]

219.—Calobates melanops. (562).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Singhbhum.

[409.—Budytes cinereocapilla, *Savi.* (593).

Sambalpur, south of Mahanadi.—A. O. H.]

220.—Budytes melanocephala, *Licht.* (593*bis*).

Lohardugga; Sirguja.

221.—Budytes flava, *Linn.* (593*ter*).

Bardwan; Manbhum; Sambalpur, north [and south.—A. O. H.] of Mahanadi; Orissa, north of Mahanadi.

222.—Budytes citreola, *Pallas.* (594*bis*).

Bardwan; Singhbhum. [Raipur.—A. O. H.]

223.—Limonidromus indicus, *Gmel.* (595).

Godaveri Valley.

This species may have been overlooked in other districts, but has certainly not been recorded, except by Blanford from the Godaveri Valley.

224.—Anthus maculatus, *Hodgs.* (596).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Jaipur.

225.—Anthus trivialis, *Lin.* (597).

Manbhum ; Singhbhum ; Kalahandi ; Jaipur ; Bastar. [Raipur.—A. O. H.]

226.—Corydalla richardi, *Vieill.* (599).

Bardwan ; Nowagarh and Karial.

227.—Corydalla rufula, *Vieill.* (600).

Bardwan ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Kalahandi. [Raipur.—A. O. H.]

228.—Corydalla striolata, *Blyth.* (601).

Rajmehal Hills ; Bardwan ; Singhbhum ; Nowagarh and Karial.

229.—Agrodroma campestris, *Linn.* (602).

Bardwan ; Midnapur.

230.—Zosterops palpebrosus, *Temm.* (631).

Manbhum ; Sambalpur, north of Mahanadi ; Godaveri Valley. [Raipur.—A. O. H.]

[410.—Cephalopyrus flammiceps, *Burt.* (633).

Raipur ; (common cold season visitant.)—A. O. H.]

231.—Parus cæsius,* *Tick.* (645).

Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Godaveri Valley.

232.—Machlolophus jerdoni, *Blyth.* (648).

Singhbhum ; Sirguja ; &c. ; Jashpur and Udaipur ; Sambalpur, north of Mahanadi ; Raipur ; Nowagarh and Karial ; Jaipur ; Godaveri Valley.

233.—Corvus macrorhynchus, *Wagl.* (660).

Bardwan ; Manbhum ; Hazaribagh ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley. [Raipur.—A. O. H.]

234.—Corvus splendens, *Vieill.* (663).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial. [Raipur.—A. O. H.]

235—Dendrocitta rufa, *Lath.* (674).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Jaipur ; Godaveri Valley.

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* Or if Tickell never published this name, *P. nipalensis*, Hodg.—A. O. H.

236.—Sturnus vulgaris, *Linn.* (681).

Lohardugga.

During last cold season 1877-78, I found the Starling in some abundance in Palamow and Toree Pergunnahs. Its occurrence so far to the south-east has not been previously recorded, and I am inclined to believe that it may be abnormal, and is possibly attributable to the drought in North-western India—want of food having driven the birds beyond their usual limits of migration.

237.—Sturnopastor contra, *Linn.* (83).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Godaveri Valley.

238.—Acridotheres tristis, *Linn.* (684).

Bardwan ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Godaveri Valley.

239.—Acridotheres ginginianus, *Lath.* (685).

Lohardugga.

240.—Acridotheres fuscus, *Wagl.* (686).

* Midnapur ; Lohardugga ; Sirguja. [Raipur.—A. O. H.]

241.—Sturnia pagodarum, *Gmel.* (687).

Rajmehal Hills ; Manbhum ; Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Orissa, south of Mahanadi ; Nowagarh and Karial. [Raipur.—A. O. H.]

242.—Sturnia malabarica, *Gmel.* (688).

Manbhum ; Lohardugga ; Jashpur and Udaipur ; Sambalpur, north [and south.—A. O. H.] of Mahanadi ; Orissa, north of Mahanadi. [Raipur.—A. O. H.]

243.—Pastor roseus, *Linn.* (690).

Manbhum ; Lohardugga ; Sirguja ; Gangpur and Sarunda ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial. [Raipur.—A. O. H.]

244.—Eulabes religiosa, *Linn.* (692).

Gumsur ; North Circars.

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* ? Are these *fuscus* or *mahrattensis* ? I presume the former, but I have not been able to make certain ; the live birds are easy enough to separate, but skins are difficult to distinguish with any certainty. The Raipur birds *are fuscus*, and have the yellow irides.—A. O. H.

245.—Eulabes intermedia,* *A. Hay.* (693).

Gangpur and Sarunda ; Kalahandi ; Jaipur ; Bustar. [Sambalpur.—A. O. H.]

246.—Ploceus philippinus, *Lin.*† (694).

Bardwan ; Manbhum ; Lohardugga : Singhbhum ; Orissa, south of Mahanadi ; Nowagarh and Karial. [Raipur ; Sambalpur.—A. O. H.]

247.—Ploceus manyar, *Horsf.* (695).

Orissa, north of Mahanadi.

248.—Ploceus bengalensis, *Linn.* (696).

Bustar.

[411.—Munia malacca, *Lin.* (697).

Raipur.—A. O. H.]

249.—Munia rubronigra, *Hodgs.* (698).

Manbhum ; Lohardugga. [Sambalpur.—A. O. H]

250.—Munia punctulata, *Lath.* (699).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Sambalpur, north of Mahanadi ; Raipur ; Godaveri Valley.

251.—Munia striata, *Linn.* (701).

Manbhum ; Singhbhum ; Raipur. [Sambalpur, north and south of Mahanadi.—A. O. H.]

252.—Munia malabarica, *Linn.* (701).

Bardwan ; Manbhum ; Hazaribagh ; Lohardugga ; Singhbhum ; Sirguja ; Bilaspur ; Sambalpur, north of Mahanadi ; Orissa, north of Mahanadi ; Nowagarh and Karial ; Godaveri Valley.

253.—Estrilda amandava, *Linn.* (704).

Manbhum ; Lohardugga ; Sirguja ; Raipur ; Nowagarh and Karial.

254.—Pytelia formosa, *Lath.* (705).

Lohardugga ; Sirguja ; Bilaspur ; Raipur.

255.—Passer indicus, *J. & S.* (706).

Rajmehal Hills ; Bardwan ; Manbhum ; Lohardugga ; Orissa, north of Mahanadi ; Nowagarh and Karial.

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* Note that the race inhabiting this region is the smallest of all those that I include under the one name "*javanensis*." It is as much smaller than the Terai birds, as these are than Malaccan ones.—A. O. H.

† See. S. F., VI., 398—401.

256.—Gymnoris flavicollis, *Frank.* (711).

Midnapur; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Sirguja; Sambalpur, north and south of Mahanadi; Orissa, north and south of Mahanadi; Nowagarh and Karial; Jaipur; Godaveri Valley.

257.—Euspiza melanocephala, *Gmel.* (721).

Lohardugga.

258.—Euspiza luteola, *Sparr.* (722).

Hazaribagh; Lohardugga; Nowagarh and Karial.

259.—Melophus melanicterus, *Gmel.* (724).

Lohardugga; Bilaspur. [Raipur.—A. O. H.]

260.—Carpodacus erythrinus, *Pall.* (738).

Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Godaveri Valley.

261.—Mirafra assamica, *McClell.* (754).

Rajmehal Hills; Bardwan; Manbhum; Singhbhum; Sambalpur, north of Mahanadi.

262.—Mirafra affinis, *Jerd.* (755).

Midnapur; Manbhum; Singhbhum; Gumsur.

263.—Mirafra erythroptera, *Jerd.* (753).

Bardwan; Manbhum; Lohardugga; Singhbhum; Sambhalpur, north of Mahanadi; Raipur; Godaveri Valley.

264.—Mirafra cantillans, *Jerd.* (757).

Singhbhum; Raipur; Northern Circars.

265.—Ammomanes phœnicura, *Frank.* (758).

Lohardugga; Singhbhum; Sirguja; Bilaspur; Sambalpur, north of Mahanadi; Orissa, south of Mahanadi; Nowagarh and Karial; Godaveri Valley.

266.—Pyrrhulauda grisea, *Scop.* (760).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Gangpur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

267.—Calandrella brachydactyla, *Temm.* (761).

Manbhum; Lohardugga; Sirguja; Raipur; Jaipur.

268.—Alauda gulgula, *Frank.* (767).

Bardwan; Sirguja; Jashpur and Udaipur; Bilaspur. [Raipur.—A. O. H.]*

* The Raipur birds are not by any means typical *gulgula*.—A. O. H.

[412.—Galerita cristata, *Lin.* (769).

Raipur.—A. O. H.]

269.—Crocopus chlorigaster, *Blyth.* (773).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Gangpur and Samuda; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley.

270.—Osmotreron bicincta, *Jerd.* (774).

Manbhum.

271.—Carpophaga ænea, *Lin.* (780).

Rajmehal Hills; Midnapur; Manbhum; Singhbhum; Orissa, north and south of Mahanadi; Jaipur; Godaveri Valley.

272.—Alsocomus puniceus, *Tick.* (782).

Manbhum; Singhbhum; Sirguja.

273.—Columba intermedia, *Strick.* (788).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

274.—Turtur meena, *Sykes.* (793).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Gangpur and Samuda; Sambalpur, north [and south.—A. O. H.] of Mahanadi; Nowagarh and Karial; Gumsur. [Raipur.—A. O. H.]

275.—Turtur cambayensis, *Gmel.* (794).

Rajmehal Hills; Midnapur; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

276.—Turtur suratensis, *Gmel.* (795).

Rajmehal Hills; Bardwan; Midnapur; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

277.—Turtur risoria, *Linn.* (796).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

278.—Turtur tranquebarica, *Herm.* (797).

Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi.

279.—Chalcophaps indicus, *Linn.* (798).

Rajmehal Hills; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi.

280.—Pterocles fasciatus, *Scop.* (800).

Lohardugga; Sambalpur, north of Mahanadi; Nowagarh and Karial; Godaveri Valley.

281.—Pterocles exustus, *Temm.* (802).

Lohardugga; Sambalpur, north of Mahanadi; Godaveri Valley. [Raipur—A. O. H.]

282.—Pavo cristatus, *Linn.* (803).

Rajmehal Hills; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Jaipur. [Raipur.—A. O. H.]

283.—Gallus ferrugineus, *Gmel.* (812).

Rajmehal Hills; Midnapur; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Sirguja; Jashpur and Udaipur; Sambalpur, north and south of Mahanadi; Orissa, north and south of Mahanadi; Northern Circars; Jaipur. [Raipur—A. O. H.]

284.—Galloperdix spadiceus, *Gmel.* (814).

Sambalpur, south of Mahanadi; Orissa, north of Mahanadi; Northern Circars; Godaveri Valley.

285.—Galloperdix lunulatus, *Valenc.* (815).

Rajmehal Hills; Manbhum; Lohardugga; Sirguja; Jashpur and Udaipur; Sambalpur, north of Mahanadi; Raipur; Nowagarh and Karial; Godaveri Valley.

286.—Francolinus vulgaris, *Steph.* (818).

Rajmehal Hills; Manbhum; Hazaribagh; Lohardugga; Sirguja; Jashpur and Udaipur; Sambalpur, north of Mahanadi.

287.—Francolinus pictus, *J. & S.* (819).

Raipur; Nowagarh and Karial.

288.—Ortygornis ponticeriana, *Gmel.* (822).

Rajmehal Hills; Manbhum; Hazaribagh; Lohardugga.

289.—Perdicula asiatica,* *Lath.* (826).

Rajmehal Hills; Lohardugga; Bilaspur; Sambalpur, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

290.—Microperdix blewitti, *Hume.* (828 *bis*).

Sirguja; Raipur; Nowagarh and Karial.

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* See. S. F., VII., pp. 156—9.—A. O. H.

291.—Coturnix communis, *Bonat.* (829).

Manbhum; Lohardugga; Sirguja; Jashpur and Udaipur; Sambalpur, north and south of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

292.—Coturnix coromandelica, *Gmel.* (830).

Rajmehal Hills; Lohardugga; Sambalpur, north and south of Mahanadi; Raipur; Nowagarh and Karial; Godaveri Valley.

[413.—Excalfactoria chinensis, *Lin.* (831).

Raipur.—A. O. H.]

293.—Turnix taigoor, *Sykes.* (832).

Manbhum; Lohardugga; Bilaspur; Nowagarh and Karial. [Raipur.—A. O. H.]

294.—Turnix joudera, *Sykes.* (834).

Manbhum; Lohardugga; Singhbhum; Orissa, north of Mahanadi. [Raipur.—A. O. H.]

[414.—Turnix dussumieri, *Tem.* (835).

Raipur; Sambalpur, north and south of Mahanadi.—A. O. H.]

295.—Eupodotis edwardsii, *Gray.* (836).

Sambalpur, south of Mahanadi; Raipur.

296.—Sypheotides auritus, *Lath.* (839).

Sirguja; Sambalpur, south of Mahanadi.

297.—Cursorius coromandelicus, *Gmel.* (840).

Birbhum; Hazaribagh; Lohardugga; Sirguja; Bilaspur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Raipur; Nowagarh and Karial; Godaveri Valley.

298.—Glareola lactea, *Leach.* (843).

Bardwan; Manbhum; Lohardugga; Sambalpur, north and south of Mahanadi; Orissa, north of Mahanadi; Raipur; Godaveri Valley.

299.—Charadrius fulvus, *Gm.* (845).

Orissa, north and south of Mahanadi; Raipur; Godaveri Valley.

300.—Ægialitis geoffroyi, *Wagler.* (846).

Orissa, north of Mahanadi.

Strictly speaking perhaps this bird should not be included, as the only specimens met with were found not far from the sea.

301.—Ægialitis mongola, *Pall.* (847).

Singhbhum; Orissa, north of Mahanadi.

[415.—Ægialitis cantiana, *Lath.* (848).

Raipur.—A. O. H.]

302.—Ægialitis dubius, *Scop.* (849).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Jashpur and Udaipur; Bilaspur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

[? 416.—Ægialitis minuta,* *Pall.* (850).

Raipur.—A. O. H.]

303.—Lobivanellus indicus, *Bodd.* (855).

Manbhum; Lohardugga; Singhbhum; Sirguja; Gangpur and Jashpur; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Godaveri Valley.

304.—Lobipluvia malabarica, *Bodd.* (856).

Rajmehal Hills; Birbhum; Manbhum; Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Raipur; Godaveri Valley.

305.—Hoplopterus ventralis, *Cuv.* (857).

Lohardugga; Gangpur and Samuda; Sambalpur, north of Mahanadi; Orissa north of Mahanadi; Godaveri Valley.

306.—Esacus recurvirostris, *Cuv.* (858.)

Lohardugga; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Godaveri Valley.

307.—Ædicnemus indicus, *Salv.* (859).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Godaveri Valley. [Raipur.—A. O. H.]

308.—Grus antigone, *Linn.* (863).

Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Bustar.

309.—Grus cinerea, *Bechst.* (865).

Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi.

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* We may probably now accept *dubius* as the oldest name of the large species; but I am unable to agree that there is only one species. Unquestionably in the dry skins especially where specimens have not been carefully sexed, there does appear to be a complete transition as regards size between the two forms, large males of the lesser species being nearly the same size as small females of the larger one. But with the live birds before him, none would agree I think to unite them. The shape of the head is different, as are colours of the legs, and there is an amount of bright yellow at the base of the bill in the smaller bird that at once serves to distinguish it.—A. O. H.

310.—Scolopax rusticola, *Linn.* (867).

Jaipur.

311.—Gallinago sthenura, *Kuhl.* (870).

Manbhum ; Godaveri Valley. [Raipur.—A. O. H.]

312.—Gallinago scolopacinus, *Bonap.* (871).

Bardwan ; Manbhum ; Lohardugga ; Sirguja ; Gangpur ; Sambalpur, north and south of Mahanadi ; Orissa, north and south of Mahanadi ; Nowagarh and Karial ; Jaipur.

313.—Gallinago gallinula, *Linn.* (872).

Bardwan.

314.—Rhynchæa bengalensis, *Linn.* (873).

Manbhum ; Lohardugga ; Singhbhum ; Sirguja ; Sambalpur, north and south of Mahanadi ; Jaipur ; Godaveri Valley. [Raipur.—A. O. H.]

[417.—Tringa alpina, *Lin.* (883).

Raipur.—A. O. H.]

[418.—Tringa minuta, *Leisl.* (884).

Raipur.—A. O. H.]

315.—Tringa ruficollis,* *Pall.* (884 *bis*).

Lohardugga ; Sambalpur, north of Mahanadi.

316.—Tringa temmincki, *Leisl.* (885).

Hazaribagh ; Lohardugga ; Orissa, north of Mahanadi ; Godaveri Valley. [Raipur.—A. O. H.]

317.—Actitis glareola, *Gmel.* (891).

Lohardugga ; Sirguja ; Sambalpur, north of Mahanadi ; Godaveri Valley. [Raipur.—A. O. H.]

318.—Actitis ochropus, *Linn.* (892).

Rajmehal Hills ; Manbhum ; Lohardugga ; Singhbhum ; Orissa, north of Mahanadi.

319.—Actitis hypoleucus, *Linn.* (893).

Rajmehal Hills ; Lohardugga ; Sambalpur, north of Mahanadi ; Godaveri Valley. [Raipur.—A. O. H.]

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* Mr. Ball gives this as *damacensis*, Horsf., of which I hold *ruficollis* to be the prior designation. If Mr. Ball is correct the fact is curious, as I should have expected to find *minuta* and not *ruficollis*.—A. O. H.

320.—Totanus glottis, *Linn.* (894).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north and south of Mahanadi; Orissa, north and south of Mahanadi. [Raipur.—A. O. H.]

321.—Totanus fuscus, *Linn.* (896).

Rajmehal Hills; Birbhum. [Raipur; Sambalpur.—A. O. H.]

322.—Himantopus candidus, *Bonnat.* (898).

Rajmehal Hills; Lohardugga.

323.—Parra indica, *Lath.* (900).

Rajmehal Hills; Bardwan; Manbhum; Lohardugga; Singhbhum; Orissa, north of Mahanadi; Raipur; Nowagarh and Karial.

324.—Hydrophasianus chirurgus, *Scop.* (901).

Rajmehal Hills; Manbhum; Lohardugga.

325.—Porphyrio poliocephalus, *Lath.* (902).

Rajmehal Hills; Manbhum; Singbhum; Sambalpur, north of Mahanadi Nowagarh and Karial; Godaveri Valley. [Raipur.—A. O. H.]

326.—Fulica atra, *Linn.* (903).

Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north [and south.—A. O. H.] of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

327.—Gallicrex cinereus, *Lath.* (904).

Rajmehal Hills; Manbhum.

328.—Gallinula chloropus, *Linn.* (905).

Rajmehal Hills; Bardwan; Nowagarh and Karial. [Raipur; Sambalpur, south of Mahanadi.—A. O. H.]

329.—Gallinula phœnicura, *Penn.* (906).

Lohardugga; Sirguja; Raipur; Nowagarh and Karial.

330.—Porzana akool, *Sykes.* (908).

Singhbhum; Sambalpur, north of Mahanadi; Raipur.

331.—Porzana bailloni, *Vieill.* (910).

Rajmehal Hills; Sambalpur, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

332.—Leptoptilus argala, *Lath.* (915).

Manbhum; Lohardugga; Singhbhum.

333.—Leptoptilus javanicus, *Horsf.* (916).

Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Jaipur.

334.—Xenorhynchus asiaticus, *Lath.* (917).

Lohardugga; Sirguja; Raipur.

335.—Melanopelargus nigra, *Linn.* (918).

Lohardugga; Sirguja; Raipur; Nowagarh and Karial.

336.—Ciconia alba, *Belon.* (919).

Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi.

337.—Dissura episcopus, *Bodd.* (920).

Rajmehal Hills; Manbhum; Lohardugga; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

338.—Ardea cinerea, *Linn.* (923).

Rajmehal Hills; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

339.—Ardea purpurea, *Linn.* (924).

Rajmehal Hills; Manbhum; Hazaribagh; Lohardugga; Orissa, north of Mahanadi; Nowagarh and Karial.

340.—Herodias torra,* *Buch. Ham.* (925).

Manbhum; Lohardugga; Nowagarh and Karial. [Raipur.—A. O. H.]

341.—Herodias intermedia, *Wagler.* (926).

Manbhum; Lohardugga; Singhbhum. [Raipur.—A. O. H.]

342.—Herodias garzetta, *Linn.* (927).

Manbhum; Lohardugga; Orissa, north of Mahanadi.

343.—Buphus coromandus, *Bodd.* (929).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Nowagarh and Karial.

344.—Ardeola grayi, *Sykes.* (930).

Bardwan; Manbhum; Lohardugga; Orissa, north of Mahanadi; Nowagarh and Karial.

345.—Butorides javanica, *Horsf.* (931).

Rajmehal Hills; Manbhum; Lohardugga; Sambalpur, north [and south.—A. O. H.] of Mahanadi; Nowagarh and Karial.

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* See for discussion of these White Herons. S. F., VI., pp. 472—480.—A. O. H.

346.—Ardetta cinnamomea, *Gmel.* (933).

Sirguja.

347.—Nycticorax griseus, *Linn.* (937).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sambalpur, north [and south.—A. O. H.] of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

348.—Tantalus leucocephalus, *Gmel.* (938).

Lohardugga; Raipur; Jaipur; Bustar.

349.—Platalea leucorodia, *Linn.* (939).

Orissa, north and south of Mahanadi; Raipur.

350.—Anastomus oscitans, *Bodd.* (940).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Jaipur; Bustar. [Raipur.—A. O. H.]

351.—Threskiornis melanocephalus, *Linn.* (941).

Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial; Jaipur; Bustar. [Raipur.—A. O. H.]

352.—Geronticus papillosus, *Temm.* (942).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Orissa, north of Mahanadi; Nowagarh and Karial; Jaipur; Bustar.

353.—Falcinellus igneus, *Gmel.* (943).

Rajmehal Hills; Manbhum.

Very rare. Probably does not properly belong to the province.

354.—Anser cinereus, *Meyer.* (945).

Manbhum.

355.—Eulabeia indica, *Gmel.* (949).

Manbhum; Orissa, north and south of Mahanadi.

356.—Sarkidiornis melanonotus, *Penn.* (950).

Lohardugga; Sirguja; Sambalpur, north and south of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

357.—Nettapus coromandelianus, *Gm.* (951).

Rajmehal Hills; Manbhum; Lohardugga; Sirguja; Sambalpur, north and south of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

358.—Dendrocygna javanica, *Horsf.* (952).

Rajmehal Hills; Manbhum; Lohardugga; Sirguja; Sambalpur, north and south of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

359.—Casarca rutila, *Pallas.* (954).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north and south of Mahanadi; Orissa, north of Mahanadi. [Raipur.—A. O. H.]

360.—Spatula clypeata, *Linn.*

Rajmehal Hills; Manbhum; Orissa, north of Mahanadi; Jaipur.

361.—Anas pœcilorhyncha, *Penn.* (959).

Manbhum; Sirguja; Sambalpur, north of Mahanadi; Nowagarh and Karial.

362.—Anas caryophyllacea, *Lath.* (960).

Rajmehal Hills; Hazaribagh.

363.—Chaulelasmus streperus, *Linn.* (961).

Sambalpur, north of Mahanadi.

364.—Dafila acuta, *Linn.* (962).

Manbhum; Lohardugga; Sambalpur, north and south of Mahanadi. [Raipur.—A. O. H.]

365.—Querquedula crecca, *Linn.* (964).

Rajmehal Hills; Manbhum; Lohardugga; Sirguja. [Raipur.—A. O. H.]

366.—Querquedula circia, *Linn.* (965).

Manbhum; Lohardugga; Sambalpur, north of Mananadi; Orissa, north of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

367.—Fuligula rufina, *Pallas.* (967).

Rajmehal Hills; Manbhum; Lohardugga; Singhbhum; Sambalpur, north of Mahanadi. [and south of do; Raipur.—A. O. H.]

368.—Aythya ferina, *Linn.* (968).

Manbhum.

(Very rare.)

369.—Aythya nyroca, *Gould.* (969).

Rajmehal Hills; Bardwan; Manbhum; Sambalpur, north of Mahanadi.

370.—Fuligula cristata, *Ray.* (971).

Rajmehal Hills; Manbhum; Singhbhum. [Raipur.—A. O. H.]

371.—Mergus castor, *Linn.* (972).

Bardwan; Manbhum; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Raipur.

372.—Mergellus albellus, *Linn.* (973).

Orissa, south of Mahanadi.

Entered on account of Dr. Jerdon's statement that it has been killed at Cuttack.

It must be very rare.

373.—Podiceps philippensis, *Gmel.* (975).

Bardwan; Hazaribagh; Lohardugga; Singhbhum; Sirguja; Orissa, south of Mahanadi.

374.—Larus ichthyaetus, *Pallas.* (979).

Singhbhum.

(In Blyth's Catalogue from Chaibassa).

375.—Hydrochelidon indica, *Steph.* (984).

Manbhum; Orissa, north of Mahanadi. [Raipur.—A. O. H.]

376.—Sterna seena, *Sykes.* (985).

Rajmehal Hills; Bardwan; Lohardugga; Orissa, north and south of Mahanadi; Raipur; Godaveri Valley. [Sambalpur.—A. O. H.]

377.—Sterna melanogaster, *Tem.* (987).

Bardwan; Manbhum; Lohardugga; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi. [Raipur.—A. O. H.]

378.—Sternula gouldi, *Hume.* (988).

Sambalpur, north and south of Mahanadi; Orissa, north of Mahanadi; Godaveri Valley.

379.—Rhynchops albicollis, *Swains.* (995).

Rajmehal Hills; Orissa, north and south of Mahanadi.

380.—Pelecanus onocrotalus,* *Lin.* (1001).

Midnapur; Lohardugga.

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* The true *onocrotalus*, as defined in Elliot's monograph of the genus, P. Z. S., 1869, 571, does not, I believe, occur in India. Probably the bird usually identified as *javanicus* is intended.—A. O. H.

381.—Phalacrocorax carbo, *Linn.* (1005).

Rajmehal Hills; Lohardugga; Sirguja.

382.—Phalacrocorax fuscicollis, *Steph.* (1006).

Rajmehal Hills; Lohardugga.

383.—Phalacrocorax pygmæus, *Pall.* (1007).

Lohardugga; Singhbhum; Sambalpur, north of Mahanadi; Orissa, north [and south.—A. O. H.] of Mahanadi; Nowagarh and Karial. [Raipur.—A. O. H.]

384.—Plotus melanogaster, *Penn.* (1008).

Bardwan; Manbhum; Hazaribagh; Lohardugga; Singhbhum; Sirguja; Sambalpur, north of Mahanadi; Orissa, north of Mahanadi; Nowagarh and Karial.

Of what I consider to be spurious species, *i.e.*, species incorrectly recorded as having been found within this area, the following are the principal :—

382.—*Grammatoptila striata*, Vig., of which a specimen in the Indian Museum is said to have been brought from Birbhum, and 152.—*Palæornis fasciatus*, Müll., and 153.—*Loriculus vernalis*, Sparrm, of which specimens are said to have been obtained in the Rajmehal Hills, *vide* "Birds of India."

The following species occur on the northern limit of the area, in the Valley of the Ganges, and clearly do not belong to our Fauna, *viz* :—

396.—Timalia bengalensis, *G. Aust.*,
484.—Pratincola leucura, *Blyth.*,
823.—Ortygornis gularis, *Tem.*,

and several Reed Warblers which are found in the long grass in the vicinity of the Ganges.

Possibly to this list should be added—

50.—Glaucidium cuculoides, *Vig.*,
365.—Planesticus atrogularis, *Tem.*,
943.—Falcinellus igneus, *Gm.*,

as they appear only to occur within the area as stragglers.

On the eastern boundaries there are of course a great number of sea birds which are not included in the Fauna. In Orissa the following species were observed close to the boundary in the tidal rivers :—

846. Ægialitis geoffroyi, *Wagl.*
876.—Terekia cinerea, *Gm.*
983.—Sterna anglica, *Mont.*

On the southern boundary, or its vicinity, there occur a number of species not belonging to our Fauna. There are also a number which have straggled up northwards, but must be regarded as being out of their true limits.

Of the former the following are the principal :—

130.—Halcyon pileata, *Bodd.*
479.—Thamnobia fulicata, *Linn.*
595.—Limonidromus indicus, *Gm.*
775.—Osmotreron malabarica, *Jerd.*
813.—Gallus sonneratii, *Tem.*
841.—Rhinoptilus bitorquatus, *Jerd.*

Of the latter class, most worthy of mention are :—

210.—Surniculus lugubris, *Horsf.*
115.—Harpactes fasciatus, *Gm.*
342.—Myiophoneus horsfieldi, *Vigors.*
? 404.—Pomatorhinus horsfieldi, *Sykes.*
433.—Malacocercus griseus, *Gmel.*

On the western boundary the following two species may be mentioned in the first of the above two classes :—

494.—Cercomela fusca, *Blyth.*
813.—Gallus sonneratii, *Tem.*

And in the second class :—

434.—Malacocercus malabaricus, *Jerd.*
551.—Franklinia buchanani, *Blyth.*

List of published papers referring to this area.

Ball, Avifauna of Chota Nagpur, S. F., Vol. II, pp. 355-440.—Addenda et Corrigenda, S. F., Vol. III, pp. 288-294.—Birds collected in Sambalpur and Orissa, S. F., Vol. IV, pp. 231-237.—Birds observed in the region between the Mahanadi and Godaveri rivers, S. F., Vol. V, pp. 410-420.

Beavan, Captain, Birds from Manbhum, *Ibis*. N. S. I., 1865 ; III, 1867 ; IV, 1868.—Raptores, P. Z. S., 1868.

Blyth, E., Birds from Chaibassa, J. A. S. B., Vol. XI, 1842, p. 456.—Catalogue of Birds in Asiatic Society's Museum.

Hume., A. O., "Nests and Eggs," Vols. I—III, and various papers in S. F.

Jerdon, Dr., "Birds of India."

Tickell, Col., Birds collected in Borobhum and Dulbhum, J. A. S. B., Vol., II, 1833, p. 569.

Walden, Viscount, on the late Colonel Tickell's manuscript work, *Ibis.*, 3rd series, Vol. VI, 1876, p. 336.

Further notes on Reguloides superciliosus and Reguloides humei.

By W. Edwin Brooks, C.E.

On re-examining, with my friend Mr. A. O. Hume, the dark-headed and richly-toned Shillong *Reguloides*, referred to by me at page 128 of Vol. VII. of Stray Feathers, we find that they cannot be referred to *R. superciliosus*, but that if not a distinct species, they appear to be a dark-toned variety of *Reguloides humei*, described at pages 128 to 133, Vol. VII. of S. F.

The head is as dark or even darker than that of *Phylloscopus lugubris*, and the back is of the same olive green as in *Reg. humei*, but very much richer and brighter. The legs and feet are also the dark strong ones of *R. humei*, and the upper wing bar being inconspicuous and nearly of the same colour as the back, corresponds much better with that species than with *superciliosus*.

In the latter species, both wing bars are yellowish white, or pale yellow; and the upper one is scarcely less distinct than the lower one. Sixteen examples of *R. superciliosus* obtained at and near Muddapur (which is 183 miles from Calcutta to the north-west), all had pale yellowish brown legs and feet, and are very well represented by the upper green figure of the bird in Mr. Dresser's "Birds of Europe;" except that the belly is not so yellow, but more of a silvery white, as in *Phylloscopus sibilatrix*, the Wood Wren of England, and only the sides and flanks are washed with yellow. Two shot near Calcutta, in December 1877, are more like the lower figure of the plate.

Take an example of *Reg. humei* from the North-West Provinces of India, either hills or plains, and again take another from the Eastern Hill Districts, and there is a great difference observable; the latter being much darker-toned and richer in colour; but still they may be the same species, for of other species of different genera found in the two districts above-mentioned, those from the damp Eastern District possess, as Mr. Hume pointed out (*ante* p. 135), a rich deep coloration never reached by the same species in the dry North-West. *Siphia leucomelanura* is an additional example to the point, and many others might be cited.

Of course, I refer to birds in good fresh feather, and not to faded midsummer birds. With faded summer birds fair comparisons cannot be made. No *Phylloscopus* hardly possesses richer coloration than *affinis*, yet, in a summer specimen, I have seen all green and yellow gone, and the plumage a dull dark grey with a little yellow on the supercilium only!

Of the dark variety of *Reg. humei*, I have obtained a few in the plains here, nearly as dark on the head as the Shillong birds, and one quite as dark. Taking both the dark birds and the more fulvous North-West bird to be *Reg. humei*, I should conclude that it is a Himalayan bird that, as a rule, migrates in the cold weather to the plains of India; but all of them don't migrate, for a few may be obtained in the hills all through the winter. The other, and very distinct species, *Reg. superciliosus*, is not, I should say, a Himalayan bird; but, like *Erythrosterna albicilla* and *parva*, comes to the plains of India from Siberia and the far north. This is, however, only conjecture on my part, and may be taken for what it is worth.

On two occasions I heard the note of *R. superciliosus*, and it was not the clear shrill bell-like call of *R. humei*, but a single sibilant note, something like that of *Phylloscopus tristis*, but louder and clearer.

There is this very great difference between the two species, that whereas *humei* is an active noisy bird, always calling, and generally in an angry and excited manner if disturbed by the report of a gun, its congener is so silent that I have only twice heard it. Having never found *superciliosus* by its note, and having this season shot more than one hundred of *humei* by its note, and the same note always producing the same bird, I think it quite certain that the voices of the two species differ.

I noticed certain differences in my former paper between the two birds, but since then several others have occurred to me, so I shall give the points of difference one by one again, and if they are not thought sufficient to separate the two birds, there is an end, altogether, of attempting to discriminate closely-affined species.

The distinctive points are:—

1. The supercilium being lemon coloured, or yellow in *superciliosus*, and brownish white or buff in *humei*. In each case it would, very probably, wear in summer to what Mr. Dresser calls "dirty white."

2. Greenish white cheeks or sides of face more or less tinged with yellow in *superciliosus*, against the pale brownish cheek of the other bird. In each case the cheek is minutely mottled with brown.

3. The third distinction of the dark head, set forth in my former paper, does not hold good, so I substitute the silvery white lower parts of *superciliosus*. In *humei* these are greyer and much more washed with yellowish or buff.

4. The very superior greenness of the upper surface of *superciliosus*. It might be called the green *Reguloides*, while *humei* is the olive *Reguloides*. The almost grassy green of

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4. The very superior greenness of the upper surface of *superciliosus*. It might be called the green *Reguloides*, while *humei* is the olive *Reguloides*. The almost grassy green of

superciliosus is perhaps the best and safest distinction to go by. I refer to autumnal birds of each.

5. The brighter yellow of the upper wing bar in *superciliosus*. This is, as a rule, a good mark; the upper or narrower wing bar showing nearly as distinctly as the larger or lower one. This latter is also much brighter in *superciliosus*.

6. *Superciliosus* has pale brown legs and feet as a rule, while those of the other bird are dark brown, and of stouter make. This is a good distinction.

7. The lower mandible of the bill in *superciliosus* is yellow on basal half, while it is very pale dull brown in *humei*. This is also a good distinction.

8. The smaller and feebler legs and feet of *superciliosus*.

9. The generally smaller size of the bird. I have measured a *humei* 4·5 in the flesh; 3·8 to 4·0 is the size of *superciliosus*.

10. The wings and tail are much blacker in *superciliosus*, and the light marks, such as wing bars and edgings to tertials, present a much prettier contrast.

11. The silence of *superciliosus* and the noisiness of the other bird.

12. *Superciliosus* being only found in the eastern side of India. I have shot great numbers of *humei* from Cashmere to Dinapore, and never got a single *superciliosus*, nor have I seen it in other collections from the North-West.

This is a very strong point. The same consideration is equally strong in the case of *Reguloides subviridis*, the eastern limit of which is probably about Allahabad. In brilliancy of plumage *superciliosus*, when in good plumage, falls but little short of *Reg. viridipennis* and *Reg. flavo-olivaceus*, but these two latter are more of a bright yellowish olive, and not the purer green of *R. superciliosus*. *Phylloscopus nitidus* is of a bright green, but its green is paler than that of *superciliosus*.

First List of the Birds of Furreedpore, Eastern Bengal.

By J. R. Cripps.

In submitting this very imperfect paper, which must I know prove most tedious to the reader, I think it only fair to say that it has been prepared solely at the instigation of the Editor. He assures me that no local avifauna of any of the Central Deltaic districts has ever been published, and that however dull the paper, it will possess some value as an accurate (so far as it goes), though incomplete, list of the birds which occur in one of these.

I hope this may be the case. I am very little of an ornithologist as yet, though I hope to improve in this respect; and but for the pressure put upon me by my friend, the Editor, for whom I collected the specimens on which this paper is founded, I should never have ventured to submit my "simple story" to the Public.

A very few words about the district to which my list refers, *viz.*, Furreedpore, or, as Dr. Hunter is pleased to call it, Faridpúr, may be useful.

The district is of a triangular shape, the apex of which is the southern end. It is bounded on the north by the Ganges River, which separates it from the District of Dacca; on the south by the Districts of Jessore and Backergunge; on the east by Dacca; on the north-west by the Pubna District; and on the west by the Jessore District, the Muddoomuttee River running between. The total area of the district is only 1,352 square miles.

The country is totally destitute of forest, but the usual fruit trees, such as Mangoe, Bael, Peepul, with Bamboos and Plantains, surround all the villages. Several *beels* (or as they say up-country *jheels*) are scattered about the district, none of any great size, except towards the south end, which, for several miles, is one huge swamp, covered with long grass in amongst which are scattered small patches of paddy cultivation. Had I been able to visit this locality, several additional species of Grass and Reed Warblers, &c., would doubtless have been secured.

The land to the north-east of the district, and which runs parallel to the Ganges, is high for a few miles inland; and thence slopes down to the interior of the district, the whole of which is very low, and is, during the rains, covered with paddy, the staple crop. Wherever any holdings have been deserted, they in time become covered with a dense growth of cane and "Sun" or thatching grass, where pigs and leopards are always to be found.

The country being so bare, very many species are wanting that are found in the adjoining districts. The mammals are scantily represented, tigers I have not heard of, there are no deer or antelope, but leopards are common, and pigs and jackals swarm. The mongoose, with tiger and civet cats, are often seen. In all the larger rivers the snub-nosed alligator is common, and from the havoc they commit amongst men and cattle are a source of terror to all. On their account every bathing ghat in the district is enclosed with a Bamboo fencing, notwithstanding which people are often carried away.

Last June, word was brought me one evening, that a *ryot* of mine had been carried away while washing his feet in the river. On going to the spot I saw the crocodile, about 350 yards off,

swimming about with the dead body in his mouth. I took a shot at the beast, and by a marvellous fluke hit him in the head with a Snider bullet, when he disappeared. Six days after he was found dead, and stranded on a chur 8 miles below where he was shot, with the body still in his jaws; his total length was 18 feet.

Reptiles abound, and from the extent of paddy fields, bugs and other nocturnal insects are in myriads. These insect pests are so troublesome that during the rains the windows of houses have to be closed, or with lights burning inside life would be unbearable.

All my birds were collected round about the Soodepore Thannah in the western part of the district. On a former occasion I had seen all the eastern part of the district, but did not secure any specimens from there; and future observers will, no doubt, be able to increase materially, perhaps nearly double, the number of species included in this present list.

I could not get a shikaree to shoot and collect eggs, &c., for me, so had to do all this myself. Every bird has been measured in the flesh according to the directions given in the Ornithological Collectors' *Vade Mecum*.* The birds were collected between June 1877 and June 1878. Altogether 199 species have been noticed.

Of all the species, except those to which a star is prefixed, specimens have been sent to, and identified by, the Editor.

2.—*Otogyps calvus, *Scop.*

Pretty common and a permanent resident. I have seen about half a dozen nests, all of which were placed high up in "peepul" trees. In one instance there was a nest of the next species on the same tree with a pair of this bird. Both were sitting in the nest and probably had eggs (23rd December 1877), but as I was travelling I did not send my syce up. All birds met with in March and April have the naked skin of the head a dusky purple; these and the next species may often be seen feeding on the same carcase.

5.—*Gyps bengalensis, *Lath.*

Excessively common. They are to be found about their nests from December to March. I have seen fully-fledged young in a nest in the first week in March. The nests are generally placed on Peepul trees, but even the toddy palm tree is sometimes chosen. One nest, which I saw in the Bhootan Dooars, was placed in the fork of a main branch of some jungly tree and

* When I say "Bill at front" I mean from margin of feathers, *not* from frontal bone to tip.

only 15 feet off the ground; but as a rule they build very high up and on thick branches, thus rendering it very difficult to secure the eggs. As many as eight nests were on one large Peepul tree not far from the factory and right on the thoroughfare leading to Furreedpore.

8.—Falco peregrinus, *Gmel.*

A male shot off a large Peepul tree, in the factory compound, measured:—Length, 16·50; expanse, 35·25; wing, 12·0; tail from vent, 6·33; tarsus, 1·75; bill from gape, 1·12; bill at front, 1·0; closed wings fall short of end of tail, 1·50. Shot on 9th January 1878.

Far from common. During the cold season I only observed three birds, of which one was secured. They are only to be seen when after prey, for during the day they remain in the centre of some large Peepul or Bur tree.

11.—Falco jugger, *Gray.*

11*th December* 1877.—Shot a *female* which measured as follows:—Length, 18·25; expanse, 40·75; wing, 14·0; tail from vent, 8·50; tarsus, 2·0; bill from gape, 1·25; bill at front, including cere, 1·08; closed wings fall short of end of tail, 1·75.

13*th January* 1878, *Male.*—Length, 17·0; expanse, 38·0; wing, 12·09; tail from vent, 7·59; tarsus, 1·59; bill from gape, 1·09; bill at front, including cere, 0·95; closed wings fall short of end of tail, 1·50.

Rather common. Very partial to the large trees that grow round the skirts of every large "beel." They are very annoying to a sportsman as they stoop at wounded game. I was once out Snipe-shooting and had wounded a Snipe, when a pair of these birds stooped at the game. They did not get the bird though as it had crept under the "doob" grass, which was a foot long and very thick. After hovering over the place for a few seconds, and not seeing the bird move, they flew away. Neither of the birds I shot showed any signs of breeding. My belief is, that they breed in this district, as a pair which had been hanging about the factory compound since the 23rd October were seen by me in *coitu* on the 7th November 1877. Nothing came of these domestic arrangements; and, although I hunted every suitable spot round the factory, I failed to find a nest. Their cry is very shrill.

13.—Falco subbuteo, *Lin.*

28*th May* 1878, *Female.*—Length, 13·25; expanse, 31·75; wing, 10·42; tail from vent, 6·10; tarsus, 1·25; bill from gape,

0·80; bill at front, 0·67; closed wings fall short of end of tail, 0·33; weight, 8·12 oz. Irides intense brown; cere greenish yellow; orbital skin greenish yellow; mouth inside deep leaden colour; legs orange yellow; claws black; bill above bluish, with a black tip; bill below, base greenish yellow; rest bluish; ovaries minute.

The above specimen was the only one I ever saw; it was shot while flying at a tremendous pace overhead at dusk.

16.—Falco chiquera, *Daud.*

5th February 1878, *Male.*—Length, 11·50; expanse, 24·0; wing, 7·75; tail from vent, 5·58; tarsus, 1·33; bill from gape, 0·83; bill at front, including cere, 0·60; closed wings fall short of end of tail, 1·75.

6th April 1878, *Male.*—Length, 11·50; expanse, 23·0; wing, 7·50; tail from vent, 5·50; tarsus, 1·33; bill from gape, 0·83; bill at front, including cere, 0·70; closed wings fall short of end of tail, 1·58; weight, 5·62 oz. Irides dark brown; legs orange yellow.

Common and a permanent resident. Although I failed to find a nest I saw a young bird in June 1877, in the possession of one of the Boonooa coolies who said he had got it in Baisakh (April) from a nest which was on a large Peepul tree in the factory compound. There were three young ones in this nest which was placed about twenty feet off the ground. Mynahs and such like small birds form their principal food, though they do not disdain stooping at even *Mirafra assamica*. They freely enter groves and gardens in pursuit of prey.

17.—Cerchneis tinnuncula, *Lin.*

20th January 1878, *Male.*—Length, 14·75; wing, 10·42; tail from vent, 7·25; tarsus, 1·42; bill from gape, 0·90; bill at front, including cere, 0·60; closed wings fall short of end of tail, 0·50.

Very common in the cold weather. I kept a wounded one in confinement for over a month; at first I offered it small birds and rats, but it would not touch them; frogs however were eaten eagerly. When a frog was let loose in the room, the bird would utter a few squeaking notes and commence by picking out the eyes. It eventually died notwithstanding all my care. I saw one of these birds as late as the 29th of March; by the end of that month they disappear from the district.

23*bis*.—Astur poliopsis,* *Hume.*

11*th March* 1878, *Male.*—Length, 13·0; expanse, 23·25; wing, 7·50; tail from vent, 6·25; tarsus, 1·80; bill from gape, 0·83; bill at front, including cere, 0·75; closed wings fall short of end of tail, 2·75; weight, 5·87 oz. Irides blood red; legs yellow; cere greenish yellow; orbital skin verditer.

25*th March* 1878, *Young Male.*—Length, 12·25; expanse, 23·50; wing, 7·16; tail from vent, 6·33; tarsus, 1·66; bill from gape, 0·75; bill at front, including cere, 0·68; closed wings fall short of end of tail, 3·33; weight, 4·12 oz. Irides yellow; legs dusky yellow; bill bluish; cere greenish.

18*th April* 1878, *Adult Female.*—Length, 14·50; expanse, 24·50; wing, 8·16; tail from vent, 7·0; tarsus, 2·0; bill from gape, 0·83; bill at front, including cere, 0·82; closed wings fall short of end of tail, 3·0; weight, 8·62 oz. Bill, above black, below blue; cere greenish yellow; irides bright yellow; legs pale yellow; claws black; mouth, inside black.

26*th May* 1878, *Female.*—Length, 13·0; expanse, 26·0; wing, 7·92; tail from vent, 6·25; tarsus, 2·0; bill from gape, 0·90; bill at front, including cere, 0·85; closed wings fall short of end of tail, 2·50; weight, 7·25 oz. Irides bright yellow; legs dusky yellow; feet bright yellow; claws bluish horny; orbits very light yellow; eyelids dark; bill, horny above; gape, above and below bluish, tinged yellow; lower mandible, base blue; tip, horny; cere greenish yellow; ovaries minute.

Common, and a permanent resident. In No. 1 the subterminal dark band on the central tail feathers is very faint. The thigh coverts in the adult male are unstriated and white, whereas in the female they are faintly barred fulvous with a few spots of fulvous. The young birds have the upper breast closely barred fulvous. Both Nos. 1 and 3, which I take to be adults, have the central tail feathers unbarred; but there are dark patches on the shafts of the feathers to show where the bars once were. The outer tail feathers of No. 3 (female) are barred, whereas in the adult male, they are unbarred. No. 4 had evidently been in confinement at some time as the wire ring on its right foot shows.

On the 18th April 1878, I found a nest of one of these birds which contained one very slightly-incubated egg; it was built in a fork high up near the top of a Peepul tree, and was a ragged affair of twigs with an attempt at a lining of fine grass roots principally of "doob." The egg was devoid of markings, but was soiled, evidently by the birds' droppings, in a few

* Though these are not quite typical, they are much closer to *poliopsis* than to *badius*.—*Ed. S. F.*

places. Another nest, which I found on the 15th of April 1878, contained three partly-fledged young, and was situated on a mangoe tree, near the top of the tree and about 25 feet from the ground; neither of these nests were in the vicinity of water.

The young male shot on the 25th March was hit by a single pellet of shot about the centre of the neck; blood was oozing out; but although I kept it for two days it did not die, but it could not keep its head straight up, and when attempting to fly would tumble over on its back like a Tumbler Pigeon.

When firing at No. 1, I thought it was some kind of Owl, as it was flying with slow long flaps of its wings just like *Asio accipitrinus*.

27.—*Aquila mogilnik, *Gmel.*

14th January 1878.—Shot a large Eagle, which being only wounded I brought home. It lived till the 26th February, and on dissection proved to be a male. The description given at page 151 of Hume's "Rough Notes," of the 4th stage of *A. imperialis* applied to the bird I shot, and I have no hesitation in assigning it to that species. There were two *pure* white feathers amongst the secondary wing-coverts, one on each wing. The colours of the soft parts were the same as those described at page 158, 3rd specimen of the above mentioned work.

It measured:—Length, 30·0; expanse, 74·0; wing, 22·0; tail from vent, 12·50; tarsus, 3·50; bill from gape, 2·40; bill at front, including cere, 2·08; closed wings equal end of tail; 4th primary longest.

It would not touch rats even if skinned and given, but would feed on the carcases of the different birds I used to shoot. Its broken leg joined completely while in confinement. From always remaining on the ground its feathers were too spoilt to make a specimen, so I threw it away, and was punished by not seeing another one all the time I was at the factory. During confinement it never uttered any sound. I shot it off a small plum tree in a sparsely cultivated plain.

30.—Aquila hastata, *Less.*

26th March 1878, *Male.*—Length, 25·0; expanse, 60·0; wing, 17·75; tail from vent, 9·25; tarsus, 3·75; bill from gape, 2·33; bill at front, including cere, 1·70; closed wings exceed tail, 1·0. Feet greenish yellow; cere wax yellow; gape ditto; irides light brown; bill, base bluish; rest black.

16th May 1878, *Female.*—Length, 26·75; expanse, 64·0; wing, 18·70; tail from vent, 9·83; tarsus, 3·75; bill from

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gape, 2·30; bill at front, including cere, 1·80; closed wings equal tail. Irides dark brown; gape lemon yellow; feet light yellow; bill, leaden at base, above and below, rest horny; cere lemon yellow; eyelids whitish, sparingly clad with white down; ovaries minute. *Shot off nest with egg.*

18*th May*, *Male.*—Length, 25·50; expanse, 60·0; wing, 18·0; tail from vent, 9·50; tarsus, 4·0; bill from gape, 2·25; bill at front, including cere, 1·70; closed wings equal end of tail. Gape yellow; irides dark brown; feet dingy yellow; cere yellow; bill, basal half leaden, rest black; orbits clothed with tiny white feathers; testes very small.

28*th May*, *Male.*—Length, 23·0; expanse, 60·0; wing, 18·25; tail from vent, 9·60; tarsus, 3·50; bill from gape, 2·26; bill at front, including cere, 1·75; closed wings exceed tail, 1·30. Irides bright brown, but with a deal of light yellow in patches; gape wax yellow; feet and cere pale lemon yellow; mouth, inside fleshy; tongue bluish; testes small.

22*nd June*, *Male.*—Length, 25·50; expanse, 60·0; wing, 18·0; tail from vent, 8·50; tarsus, 3·75; bill from gape, 2·50; bill at front, including cere, 1·66; closed wings exceed end of tail, 1·0. Irides clear bright brown; gape and cere lemon yellow; feet dingy greenish yellow; bill basal half, leaden blue, rest black; orbital skin yellow; naked eyebrow dull pale green.

The birds shot on the 28th May and 22nd June show traces of buff spots at the bend of the wing. The bird shot off the nest is several shades darker than any of the others.

I have repeatedly seen them flying past with rats, which they hold in their mouths, and not as most other birds of prey do, in their talons. Very common, and can easily be distinguished when flying by the white on the upper tail-coverts, and the light patches on the secondary feathers. Is a permanent resident.

On the 1st April I saw a bird fly up into a Tamarind tree with a twig in its mouth, and on the 16th May I took the only egg there was. This Tamarind tree formed one of a clump growing on a deserted ryot's holding. The trees were all very large, and the under-growth of cane, &c., was very dense. The nest was a large structure of sticks and twigs with a lining of the latter and contained only one egg. The Chick's bill protruded while carrying the egg home. The nest was about 50 feet from the ground and right on the top of the tree. The parent bird sat very close, taking ever so many stones to drive her off the nest when I shot her. On two adjoining trees I found the nests of *Bubo coromandus* and *Spilornis rutherfordi*. These Eagles are very tame, allowing of an easy approach at all times. On no occasion did I see them catch

birds for food. They perch on the trees that are studded about the expanse of paddy fields during the day, and retire for the night to the tree jungle.

34.—Limnaetus caligatus, *Raffles.*

28*th March* 1878, *Female.*—Length, 26·75; expanse, 56·0; wing, 16·50; tail from vent, 12·10; tarsus, 3·75; bill from gape, 1·86; bill at front, including cere, 1·58; closed wings fall short of end of tail, 3·75. Irides stone colour; feet dusky yellow; bill and cere black; gape bluish; nostrils greenish.

24*th May*, *Male.*—Length, 25·75; expanse, 51·0; wing, 15·12; tail from vent, 10·75; tarsus, 3·75; bill from gape, 1·58; bill at front, including cere, 1·33; closed wings fall short of end of tail, 4·33. Irides bright golden yellow; feet dirty greenish yellow; mouth inside, leaden blue; bill and cere black; claws black; orbits pinkish, clothed with white down; testes quarter inch in length.

28*th May*, *Male.*—Length, 26·0; expanse, 52·0; wing, 16·20; tail from vent, 11·75; tarsus, 4·0; bill from gape, 1·92; bill at front, including cere, 1·58; closed wings fall short of end of tail, 3·60. Bill and cere black; gape paler; orbits light green; irides pale orange; feet pale yellow; mouth inside, fleshy, tinged blue at the edges; testes small.

4*th June*, *Male.*—Length, 25·50; expanse, 48·50; wing, 14·50; tail from vent, 11·0; tarsus, 4·0; bill from gape, 1·70; bill at front, including cere, 1·46; closed wings fall short of end of tail, 4·25. Irides bright yellow; bill and cere black; feet dirty yellowish white; mouth, inside bluish; testes small.

This species is very common. Wherever there is a tank surrounded with heavy tree and cane jungle, one of these birds is sure to be found. None of the birds, on dissection, showed signs of breeding, nor could any of the natives call to mind having found a nest. I never had any difficulty in getting within range of these birds, and don't recollect meeting any but single ones. I have seen very nearly half a pound of meat taken out of the crop of one of these birds. Their cry is very loud and shrill, and is uttered when perched on a tree as well as on the wing. They are permanent residents.

34*A*.—Limnaetus horsfieldi, *Vigors.*

23*rd May* 1878.—Near the factory is a small market-place, in the centre of which a huge Burgot tree rears its head. About 40 feet off the ground, and in the fork of one of the primary branches, this bird's nest was placed. When first I noticed the parent bird, half her body was visible above the

nest, but when she became aware that I was noticing her, she crouched down, and not even her head was visible. I pelted some half a dozen stones, when she flew and settled on a branch close by, and on my knocking her over she uttered a few shrill screams like *L. caligatus*. I sent a man up and found a callow young which could not have been more than a week old. This female measured:—Length, 26·75; expanse, 57·0; wing, 16·50; tail from vent, 12·0; tarsus, 4·25; bill from gape, 1·92; bill at front, 1·58; closed wings fall short of end of tail, 4·33. Feet dirty yellow; bill and cere black; nostrils light yellow; irides, upper half golden yellow, lower half bright orange; orbits pale fleshy, clothed with white down; mouth inside fleshy with patches of blue.

The irides of the young bird were a light brown bill and cere black; legs and feet a light bluish green; claws black. By the 21st June feathers commenced sprouting on the wings, scapulars and tail, all of a jet black; and a week later the feathers of the tarsus appeared; these were jet black too.* I weighed him on the 10th June, when he scaled 1lb. 2¼oz. He used to eat the flesh of every kind of bird except that of *Hierococcyx* which he would always throw up. Why was this? He would not do this with Owl's and Hawk's flesh. On the morning of the 30th June I found him dead. The lazy rascal of a servant, to save himself the trouble of feeding it several times, had stuffed its maw so much that the bird must have died of suffocation. I forgot to mention that in the nest under the chick were four twigs with green leaves of the "Jamoon" tree, which had evidently been broken the very morning I found them. The young one was then covered with down of a pale dove grey.

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

1*st April* 1878, *Female.*—Length, 24·75; expanse, 52·0; wing, 16·50; tail from vent, 11·25; tarsus, 3·42; bill from gape, 1·75; bill at front, 1·50; closed wings fall short of end of tail, 2·50. Irides bright yellow, also cere; bill bluish, black tipped; legs dirty yellow.

7*th April* 1878, *Female.*—Length, 23·75; expanse, 53·50; wing, 16·50; tail from vent, 11·25; tarsus, 3·42; bill from gape, 1·66; bill at front, 1·50; closed wings fall short of end of tail, 2·50. Irides slightly orange yellow; legs dirty yellow; bill blue, tip black; cere yellow, brightest towards the eyes. Ovaries contained one imperfect egg about an inch in diameter.

* This is very important as showing that the young of this species or melanoid race is black like the parent. The mother now in my museum is one uniform sooty black. Unfortunately Mr. Cripps did not know the bird, nor the interest attaching to it, and did not watch for or observe the male.—Ed.

The bird shot on the 1st April was incubating. The nest was on a Bael (*Ægle marmelos*) tree, and within 4 feet of the outer end of one of the primary branches which grew out perfectly horizontally, and about 15 feet off the ground. She flew off the nest and settled on a "Bombax" tree close by, when I knocked her over; nest of twigs of sizes with a lining of fresh Bael leaves, one very hard set egg. Found a frog in the gullet of this bird. Their principal food, however, is snakes. One day I watched a bird finishing a snake, two feet long, in five minutes. They commence at the head and go on tearing and swallowing until all is done. They are very fearless birds, allowing one to pass within twenty feet of them when sitting on the ground with snakes in their claws. On one occasion, when out Snipe-shooting, one of these birds stooped at a wounded Snipe but missed it. They are permanent residents. Their cry has a mournful sound; and, although not very loud, can be heard when the bird is flying high over head.

40.*—Pandion haliaetus, *Lin.*

I have repeatedly seen a White-headed Fishing Hawk, somewhat smaller than *P. ichthyætus*, but it was so wary that I could not get near enough to risk a shot; it was generally to be seen sitting on a dead branch high up on some gigantic tree overlooking a "beel" or river; it could have been no other bird but this.

41.—Polioaetus ichthyaetus, *Horsf.*

20*th March* 1878, *Male.*—Length, 26·25; expanse, 61·0; wing, 17·62; tail from vent, 10·75; tarsus, 3·33; bill from gape, 2·0; bill at front including cere, 1·89; closed wings fall short of end of tail, 2·42. Irides brown; bill and cere blackish; legs dirty grey; claws black.

On the 12th March I saw one of these birds sitting near a couple of nests which were high up on a Kuddum tree in a ryot's holding, and overlooking a large "beel." The ryot told me the young had flown by the beginning of February, and that the eggs are laid in the latter end of November. On my asking if the two nests belonged to two pairs, he said no; but that while one bird sat on the egg in one nest, the other bird occupied the empty nest. It is a permanent resident and rather common. My specimen was shot while devouring a fish (*Ophiocephalus striatus*) in the factory compound. These birds are very fond of sitting on the stakes which are found in every "beel" here, and allow of a much nearer approach than the next species. I have never heard them calling.

42.*—Haliaetus leucoryphus, *Pallas.*

Much more common than the last species. It breeds in the district, and is a permanent resident. I put off securing a specimen, and eventually left the district without getting one. I noticed three or four of their nests, but during the time they were breeding (November and December), I was confined to my bed, so lost their eggs. Tamarind, Bombax and Peepul trees are generally chosen. A Hindoo, in whose compound grew a large Tamarind tree on which there was a nest of one of these birds, begged me not to shoot them, as they judged the hour by them. They say the birds call every three hours by night or day; they often carry off wounded game, and on one occasion I saw a wounded *Casarca rutila* taken away by one of them. Fish, however, are their principal food. I once rescued a large fish (13 lbs. in weight) from one of these birds. It had after great difficulty brought the fish to the shore, and on my running up to the spot flew away leaving the fish behind.

This was not in Furreedpore, but on the Lukhia river running into the Megna at Naryan Gunj. The fish was a scaleless one, what the natives call "*Ayer*," a kind of Cat fish I think.

51.—Circus macrourus, *S. G. Gmel.*

22*nd January* 1878, *Female.*—Length, 20·0; expanse, 47·0; wing, 14·75; tail from vent, 10·0; tarsus, 2·9; bill from gape, 1·47; bill at front, 0·83; closed wings fall short of end of tail, 1·75. Irides brown.

Common in the cold weather; they keep very much to the large plains, and are not easily stalked. They quarter a plain with great care flying with a measured flight, dropping on to any unlucky frog or large grasshopper that they see. When wounded I have heard them utter a weak but shrill cry, very like what *C. melanoleucus* does when taken up in the hand after being wounded. These birds perch on the ridges and mounds that are scattered about cultivated plains which they frequent.

52.—Circus cineraceus, *Mont.*

6*th March* 1878, *Male.*—Length, 17·75; expanse, 43·0; wing, 14·75; tail, 10·0; tarsus, 2·25; bill from gape, 1·08; bill at front, including cere, 0·83; closed wings equal end of tail; weight, 8·75 oz. Legs dark yellow; irides pale yellow; cere pale yellow; bill base greenish.

A cold weather visitant, arriving after the other Harriers that are found in the district, and keeping to open plains and

cultivated fields; it is very wary. During the whole cold season of 1877-78, I only secured one specimen; it is by no means so common as *C. macrourus;* it perches on mounds and ridges and feeds principally on grasshoppers and lizards.

53.—Circus melanoleucus, *Gmel.*

22*nd March* 1878, *Male.*—Length, 17·75; expanse, 43·25; wing, 14·33; tail from vent, 9·08; tarsus, 2·75; bill from gape, 1·14; bill at front, including cere, 0·90; closed wings fall short of end of tail, 0·20; weight, 9·5 oz. Cere greenish yellow; bill black; irides wax yellow; legs orange yellow; gape bluish.

10*th April* 1878, *Female.*—Length, 18·50; expanse, 45·25; wing, 14·0; tail from vent, 9·25; tarsus, 3·0; bill from gape, 1·27; bill at front, including cere, 1·10; closed wings equal end of tail. Irides bright yellow; cere greenish yellow; legs pale yellow; bill black above, bluish beneath.

Excessively common; the latest date on which I noticed this bird this year was the 17th April.

I had read of the female of this species being overlooked by most of Mr. Hume's collectors, and was on the look out, when one day I saw a bird alight on the dry bed of the river in front of my house, and which spot was a favorite resting place of the Pied Harrier. Why they chose this particular spot I do not know, for it was perfectly bare, the carriage and gait of this dark-colored bird being exactly the same as that of the Pied Harrier. I guessed it was a female, so lost no time in securing it, and on dissection my surmises proved correct. I have dissected several pied birds and found them all males. In 1876, when in the Dooars, I saw a pied bird devouring a small snake; they feed principally on grasshoppers, small lizards, frogs and such like small fry; are very silent birds, but if wounded they utter weak and shrill Harrier-like notes; when I was out shooting they often used to fly past me within 10 and 15 yards; they perch on bushes as well as on the ground.

54.—Circus æruginosus, *Lin.*

6*th March* 1878, *Male.*—Length, 20·0; expanse, 48·0; wing, 15·70; tail from vent, 9·50; tarsus, 3·20; bill from gape, 1·35; bill at front, including cere, 1·20; closed wings equal end of tail. Legs yellow.

4*th April* 1878, *Immature Female.*—Length, 19·75; expanse, 48·0; wing, 15·0; tail from vent, 8·75; tarsus, 3·16; bill from gape, 1·42; bill at front, including cere, 1·20; closed wings fall short of end of tail, 0·50. Irides brownish yellow; bill above black, below bluish; cere greenish yellow; legs pale yellow.

Very common, but during the cold season only. The last bird of the season seen by me was a young brown one on the 20th April; that night there was a heavy fall of rain, and not a bird was seen afterwards. When killed they have a rank offensive smell like that of a cockroach, especially the females, and the effluvia remains in the skin* for ever so long afterwards. The cry is very Harrier-like. The adults I have found very wary, but the young brown ones are easily shot; frogs, lizards and grasshoppers are their food; in this district, with the exception of the patches of tree jungle, they are found everywhere, hawking over grass and paddy fields, as well as over plains and swamps.

55.—Haliastur indus, *Bodd.*

30*th November* 1877, *Immature Female.*—Length, 18·0; expanse, 43·0; wing, 14·50; tail from vent, 8·25; tarsus, 2·12; bill from gape, 1·33; closed wings equal end of tail. Irides wood brown, with the outer edge paler; bill bluish at base; rest horny; tarsus dingy yellow; claws black.

26*th May* 1878, *Male.*—Length, 18·0; expanse, 50·0; wing, 16·50; tail from vent, 8·50; tarsus, 2·0; bill from gape, 1·44; bill at front, including cere, 1·33; closed wings exceed end of tail, 0·75. Irides bright brown; cere pale yellow; legs pale yellow; claws black; eyelids light yellow; orbits clothed with white down; bill below light blue, tip whitish, above pale green, paling to a white tip; gape pea green.

5*th June* 1871, *Female.*—Length, 19·25; expanse, 49·0; wing, 16·75; tail from vent, 9·50; tarsus, 2·08; bill from gape, 1·56; bill at front, including cere, 1·37; closed wings exceed end of tail, 0·75. Cere pale yellow; bill pea green, tip whitish; gape pea green; legs light yellow; claws dusky yellow; irides bright brown; mouth inside bluish, tinged with fleshy. This bird was not skinned till 12 hours after death and had got very stiff, hence the difference in the measurements of the expanse with the male.

Neither Dr. Jerdon nor Mr. Hume make any mention of the dusky bars on the inner webs of the secondaries in this species. The male bird, too, is of a much darker chestnut; the lower tail-coverts in both specimens have no trace of rufous white as mentioned in "Rough Notes," page 317. This species is not so very common as the next; it is a permanent resident. On the 27th February 1878, I took two partly-incubated eggs from a nest built in amongst the leafy branches and near the top of a *Ficus religiosa* tree, some 35 feet off the ground.

* Precisely the same is the case with *Baza lophotes*, which always has this rank froggy smell.—Ed.

The nest was of the common Kite type, of twigs with a lining of cow's hair and a few grasses. On the 20th November 1877 I noticed one of the above pair carrying twigs up to this Peepul tree, which was in my factory compound. I sent a man up ever so often to see if there were any eggs, but it was the 27th February before they were secured. Mr. Oates (S. F., Vol. V., p. 142) also alludes to the length of time taken by this species to build. This bird is not very particular about its food; fish, frogs, chickens, anything, so long as it is alive. Whenever the natives fish in the beels in gangs during the hot weather, dozens of this species hover over head and pounce on the fish as they rise to the surface.

56.—* Milvus govinda, *Sykes.*

Excessively common and a permanent resident; breeds in the cold weather. On the 18th November 1877 I found a nest high up, and in the centre of a large Peepul tree with two very slightly-incubated eggs; it was a large nest of twigs, and had a deal of powdered mud inside, but whether used as a lining or droppings from the bird's feet, I cannot say; the birds made no show of defending their nest. On the 18th January 1878, from this same nest, I took another egg (this was addled), but could not say if the original pair were still hanging about; the man who went up for the last-mentioned egg got clawed by the pair.

59.—Elanus cæruleus, *Desf.*

4th December 1877, *Male.*—Length, 11·70; expanse, 32·; wing, 10·42; tail from vent, 5·33; tarsus, 1·12; bill from gape, 1·0; bill at front, including cere, 0·75; closed wings exceed end of tail, 0·42. Irides crimson.

23rd January 1878, *Female.*—Length, 11·08; expanse, 32·75; wing, 10·08; tail from vent, 5·0; tarsus, 1·15; bill from gape, 1·12; bill at front, including cere, 0·67; closed wings exceed end of tail, 1·0. Irides crimson.

Pretty common and a permanent resident, as I have observed birds all the year round, and on the 15th July 1877 saw one fly to the top of a Ficus tree with a twig in its mouth; the nest was in a fork on one of the small topmost branches and fully 60 feet high. On the 25th July I sent a man up, but there were no eggs; the nest was eventually deserted. I have shot birds in the cold weather with yellow irides; they are very silent birds. On one occasion I saw one of these birds worrying a *S. rutherfordi*, which was seated on the top of a bush; the *Elanus* kept stooping at, but never clawed the other.

60.—Strix javanica, *Gm.*

19*th January* 1878, *Female.*—Length, 14·0; expanse 39·10; wing, 11·70; tail from vent, 5·08; tarsus, 2·50; bill from gape, 1·58; bill at front, 0·91; closed wings exceed end of tail, 0·30. Bill fleshy, white tipped; irides dark brown.

9*th June* 1878, *Male.*—Length, 14·0; expanse, 39·0; wing, 11·33; tail from vent, 5·16; tarsus, 2·70; bill from gape; 1·56; bill at front, including cere, 1·40; closed wings exceed end of tail, 1·33. Bill fleshy; irides dark brown; legs dirty yellowish white; mouth inside fleshy.

Pretty common, and a permanent resident. Both the above birds were caught in the verandah of the house in which I was living. They had come in during the night and remained. I have on some half a dozen occasions fired at these birds in this as well as other districts, and on picking the birds up they were alive, with not a feather displaced or a drop of blood to be seen. Some five years back, when in the Mymensing District, I had secured a bird in this way and kept it alive for some months, feeding it with fowl's entrails; and the one shot on the 9th June I kept for several days; and, although there were a good many rats in the room where it was confined, I never found traces of any having been eaten. These birds can see in the day. I never heard them utter any sounds except a sharp "chur-r-r," and cannot conceive how this Owl can make the diabolical sounds ascribed to it by Mr. Rainey (S. F., Vol. III., page 332), for often of a moon-light night, while lying awake in bed, I have seen these birds alight on the window, and never heard any other sound uttered than that already indicated. In the Eastern Districts of Bengal (and I have been over a good many of them) the Brown Fish Owl is called "Bhootoom Paycha," and the sounds uttered by this *are* horrible; in fact they always send a regular shudder through me. The cries of *Ketupa* are well described by Mr. Mason, "Rough Notes," page 383. The cries like those of a child or a strangling cat which are heard at night proceed from *Ninox scutellatus*, vide Jerdon, Vol. I., page 148. This ought to be properly investigated.

68.—Asio accipitrinus, *Pall.*

16*th December* 1877, *Female.*—Length, 14·87; expanse, 37·0; wing, 12·0; tail from vent, 6·25; tarsus, 2·0; bill from gape, 1·08; bill at front, including cere, 1·0; closed wings fall short of end of tail, 0·33. Irides, yellow.

19*th November* 1877, *Female.*—Length, 14·25; expanse, 36·0; wing, 12·0; tail from vent, 6·0. Irides yellow.

16*th December* 1877, *Female*.—Length, 13·75; expanse, 36·5; wing, 12·08; tail from vent, 5·92; tarsus, 1·83; bill from gape, 1·16; bill at front, including cere, 1·08; closed wings exceed end of tail, 0·25.

Common during the cold weather, frequenting open plains covered with short "*ooloo" grass and brushwood. They may often be seen during the heat of the day crouched under the tamarisk bushes on sandy churs and never far from water. I have put up as many as 13 in acre of indigo; when flushed they alight a short distance off, but if a gun is fired they circle over-head for some time and do not alight under a quarter of a mile. I have never heard them utter any note; on dissection they were found to have eaten flesh of some kind. The last bird of the season I saw on the 22nd March 1878.

70.—Bubo coromandus, *Lath.*

24*th January* 1878, *Male*.—Length, 22·75; expanse, 56·0; wing, 15·50; tail from vent, 8·50; tarsus, 2·58; bill from gape, 1·67; bill at front, 1·25; closed wings fall short of end of tail, 2·0. Irides, light yellow; the pupil very large; orbital skin livid purple; bill dusky yellow.

Rather common. The natives here call it "Bun moorgee," from the cackling sound it sometimes makes. I have heard them crying so, as early as 3 P.M. On the deserted ryot's holding, where I found a nest of *Aquila hastata*, and on a tamarind tree within 50 yards of the latter's nest, was one of this Owl containing a young bird whose quill feathers were a couple of inches long. This tamarind tree stood about 100 yards off the public road, and the nest was placed about 40 feet off the ground in the centre of the tree. It was a huge structure of sticks and twigs, more in fact than a man could carry; no lining, but the nest contained the remains of another young *Bubo* and the heads of 15 young *Corvus macrorhynchus* which had evidently supplied many a meal to the young monster. There were also the shells of ever so many Crows' eggs in the nest; the smell from all this was very offensive. The female flew off the nest when my man went up, but I bagged the male, which was sitting on one of the side branches; in this clump of trees the natives said these birds built every year. I took the young one home, and he lived for over a month, feeding on raw flesh. I had to come away from the factory for a few days, and the foolish servant left the room door open, when an Imperial Eagle I had got in and tore the unfortunate Owl to pieces. His plumage, when I first got him, was of a dark grey, each feather showing the central stripe which was a darker grey; the feathers loose

Imperata cylindrica.—Ed.

and flabby; disc skin leaden blue; the bristles paler; irides greyish brown; bill yellowish horny; feet dusky. The primary feathers were two inches long and of the normal colour. When he died (10th March) his primary feathers were 7 inches in length, and the other small grey feathers had here and there been replaced by earthy brown ones; beyond this there was no change. When any one would approach him he would shake his head from side to side and snap his mandibles together, the pupil of the eye dilating and contracting all the while. A Kestril was in the same room with him, and he used to be continually bullying it. One day a couple of these Owls were shot by me, and some Hindoo Barbers and Dhobeys living near took the birds from me and ate them! They pronounced them very fat and delicate eating.

72.—*Ketupa ceylonensis, *Gmel.*

24th January 1878, *Male.*—Length, 23·0; expanse, 54·50; wing, 16·0; tail from vent, 7·08; tarsus, 2·20; bill from gape, 1·90; bill at front, 1·50; closed wings equal end of tail. Irides, yellow.

The above bird I shot in a clump of mangoe trees on the outskirts of a village. The report of the gun flushed a second bird from a large hollow in the stump of a mangoe tree, and about 9 feet off the ground, and in this hollow I found two eggs, one just hatching off which I left; no lining of any kind to the hole. The villagers told me that every year a pair of this Fish Owl laid in that hole. The egg was pure white and of an oval shape; it was very hard set. The natives have an idea that some inmate of any house on which this bird sits and calls, is sure to die, and I have known of two instances in which the prediction was verified. The native name of "Bhootoom" is given in imitation of its call. Very common in the district; in every village where there happens to be a bit of heavy tree jungle a a pair of these birds are to be found.

74.—Scops pennatus, *Hodgs.*

2nd February 1878, *Male.*—Length, 7·50; expanse, 14·50; wing, 5·58; tail from vent, 2·58; tarsus, 1·0; bill from gape, 0·75; bill at front, 0·50; closed wings equal end of tail. Irides bright yellow; feet brownish yellow; claws horny; soles of feet, two shades lighter than feet; bill, above black; below, greenish yellow.

This bird was shot while basking in the sun on one of the lowest branches of a Casuarina tree just alongside my house at 3 P.M. At first I mistook it for the stump of a branch, but on its

raising its horns saw my mistake. For several nights towards the latter end of January I had heard a low musical hoot, and could not come across the bird. I never saw or heard another, so conclude the bird must be rare.

76.—Carine brama, *Tem.*

6th March 1878, *Female.*—Length, 9·50; expanse, 21·0; wing, 6·25; tail from vent, 3·25; tarsus, 1·10; bill from gape, 0·83; bill at front, including cere, 0·70; closed wings fall short of end of tail, 0·42; weight, 5·12 oz. Irides pale yellow; bill greenish yellow; legs dingy green.

23rd April 1878, *Male.*—Length, 9·0; expanse, 20·50; wing, 6·50; tail from vent, 3·42; tarsus, 1·12; bill from gape, 0·84; bill at front, including cere, 0·70; closed wings equal end of tail; weight, 4·62 oz. Irides golden yellow; bill greenish yellow; legs dirty greenish yellow; testes small.

On the 6th March 1878 I took two hard set eggs (shooting the female, whose measurements are given above) from a hole in the wall of the factory press house. A few feathers and grasses were used as a lining to the hole. A wretched rat walked off with both the eggs the very night I got them. Common and a permanent resident—not near so fearless as *S. javanica.* Old buildings are their favorite resort.

81*bis*.—Ninox scutulatus, *Raffl.*

30th June 1878, *Male.*—Length, 11·0; expanse, 25·0; wing, 8·0; tail from vent, 5·08; tarsus, 0·92; bill from gape, 0·92; bill at front, including cere, 0·80; closed wings fall short of end of tail, 0·50; weight, 5oz. Irides deep turmeric yellow; cere greenish; eyelids purple; feet dusky-orange; claws horny yellow; bill, culmen, and base below light bluish; rest pale horny-blue; mouth inside livid purplish; testes minute.

This specimen was knocked over by a Boonooa coolie with a pellet, while sitting on the roof of the press house; was alive when brought to me, and although it was kept alive it never uttered a sound all night. This was the only one I saw, so presume it is rather rare.

82*bis*.—Hirundo gutturalis, *Scop.*

1st April 1878, *Male.*—Length, 7·0; expanse, 12·0; wing, 4·33; tail from vent, 3·54; tarsus, 0·33; bill from gape, 0·65; bill at front, 0·30; closed wings fall short of end of tail, 1·25; weight, 0 62 oz. Bill and legs black.

Very common. I did not secure specimens in the cold weather; this was one of a flock which was flying past, evidently

migrating, flying eastwards; the flock from which the above was shot numbered about 50 individuals.

85.—Hirundo erythropygia, *Sykes.*

9th April 1878, *Female.*—Length, 7·08; expanse, 12·25; wing, 4·50; tail from vent, 4·0; tarsus, 0·46; bill from gape, 0·58; bill at front, 0·30; closed wings fall short of end of tail, 1·40; weight, 0·62 oz. Bill and legs black; irides brown.

Very common. I neglected securing this kind in time, and only got this one out of a flock of 50 that was migrating, flying eastwards.

89.—*Cotyle sinensis, *Gray.*

Very common during the cold weather; their nesting holes seen in all the high banks; breed in February and March. By the end of April all have left the district.

102.*—Cypselus batassiensis, *J. E. Gray.*

Very common, and a permanent resident. I shot a specimen on the 12th March 1878, and which measured :—Length, 4·92; expanse, 10·50; wing, 4·25; tail from vent, 2·33; tarsus, 0·40; bill from gape, 0·50; weight, 0·37 oz.; closed wings exceed tail, 0·50. It was a male, and the testes were well developed. The specimen went bad, and I quite forgot to secure another before leaving the district.

109.—Caprimulgus albonotatus, *Tickell.*

8th February 1878, *Female.*—Length, 11·0; wing, 7·66; tail from vent, 6·0; tarsus, 0·60; bill from gape, 1·42; bill at front, 0·40; closed wings fall short of end of tail, 1·83. Ovaries size of peas.*

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* Although this specimen is so small, and the two next so large, yet, so far as coloration is concerned (*vide* S. F., VI., 58), all three specimens are correctly assigned. The fact is *macrourus*, at any rate of the Malay Peninsular, quite runs into *albonotatus* of the plains of India, and especially in localities like Furreedpore, numbers of specimens occur, which, if dimensions are relied upon, must be assigned to the one species, but which, if coloration be looked to, must be referred to the other. In other words they belong to a region where physical influences, past and present, are cumulatively more or less intermediate between those that in one region have determined the *albonotatus* form and in another the *macrourus* form.

One of the great difficulties of the present day is that ornithologists cannot be persuaded to treat the whole number of similar cases, of which this empire alone presents over 50, on one and the same principle, and either accept or refuse to accept, such nearly allied, completely interlinked forms, as distinct species. It matters little which we decide to do; but it is fatal to those higher generalizations, for which our work is accumulating materials, to persist in doing as modern ornithologists do, *viz.*, in precisely parallel cases, making *two* species, where one pair of interlinked forms are concerned, and only *one* where another exactly similar and similarly connected and circumstanced pair, are dealt with.—Ed. S. F.

I cannot say if this species is common; the specimen was shot by the native station master, E. B. Railway, at Rajbaree near Goalundo, at dusk. He did not know what bird it was, so brought it to me to see, I happening to have just arrived at the station *en route* to Calcutta. On several occasions I have noticed a small-sized Night Jar flying about at dusk at the factory, which might have been this species.

110.—Caprimulgus macrourus, *Horsfield.*

25*th March* 1878, *Male.*—Length, 12·0; expanse, 24·0; wing, 8·33; tail from vent, 6·25; tarsus, 0·50; bill from gape, 1·45; bill at front, 0·36; closed wings fall short of end of tail, 1·75; weight, 3·12 oz.; testes, 0·42 in length.

17*th April* 1878, *Male.*—Length, 12·12; expanse, 24·0; wing, 8·25; tail from vent, 7·0; tarsus, 0·66; bill from gape, 1·42; bill at front, 0·42; closed wings fall short of end of tail, 2·0; weight, 2·87 oz. Bill fleshy; tip horny; legs fleshy brown; mouth inside fleshy colour.

Pretty common; all killed showed signs of breeding; the specimen killed on 17th April was shot while sitting on the tip of a lightning conductor; when first sighting it I thought it must be a *Ninox*, as this seemed a rather out-of-the-way place for a Night Jar to alight.

117.—*Merops viridis, *Linn.*

Very common, and a permanent resident. I have found several of their nest holes during March and April with from four to five eggs in each. On one occasion I pressed out an egg (without a shell) from the oviduct of a female in the way described by Mr. Adam, in "Nests and Eggs," page 101. All the holes I found were on dead level plains, although in one or two instances the high river banks were close alongside the holes.

118.—Merops philippinus, *Lin.*

2*nd April* 1878, *Male.*—Length, 12·50; wing, 5·25; tail from vent, 6·08; tarsus, 0·42; bill from gape, 1·92; bill at front, 1·54; closed wings fall short of end of tail, 3·83; weight, 1·37 oz. Bill black; irides crimson; legs reddish.

4*th June*, *Male.*—Length, 12·20; expanse, 16·0; wing, 5·16; tail from vent, 5·60; tarsus, 0·46; bill from gape, 2·15; bill at front, 1·60; closed wings fall short of end of tail, 3·18; weight, 1·37 oz. Irides blood red; mouth inside fleshy; bill and legs black.

Far from rare; appear in February, breed here in holes in banks in July and August, after which they disappear; they fre-

quent river banks and "beels;" in the latter they perch on the sticks and bamboos which the fishermen put down for drying their nets on. They have a much louder note than the last species, and are rather shy.

123.—Coracias indica, *Linn.*

20th May 1878, *Female.*—Length, 12·0; expanse, 23·0; wing, 6·50; tail from vent, 4·70; tarsus, 0·92; closed wings fall short of end of tail, 2·0; weight, 4·37 oz. Irides yellowish brown; orbital skin yellowish green; eyelids yellowish; legs dusky orange; bill black; ovaries minute.

24th May, Male.—Length, 14·0; expanse, 24·25; wing, 7·25; tail from vent, 5·42; tarsus, 0·92; bill from gape, 1·75; bill at front, 1·33; closed wings fall short of end of tail, 2·25; weight, 4·62. Mouth inside sulphur yellow; bill dusky brown; base below lighter; irides light brown, with a pale outer edging; eyelids dull orange; orbits light yellow; legs dusky orange; claws horny.

Common, and a permanent resident. On the 3rd March 1878, I found four fresh pure white eggs of this species; just at the corner of a ryot's house stood an old date tree about 20 feet high, whose top had fallen off and the heart of the tree had rotted away for about a foot in depth; in the hole thus made the birds had laid their eggs without forming any lining. I have frequently noticed this bird at the hottest time of the day descend to the ground and sit with outstretched wings in the sun, and remain so for some time.

[These specimens are not typical, but show a distinct tendency towards *C. affinis*.—A. O. H.]

127.—Pelargopsis gurial, *Pearson.*

13th April 1878, *Male.*—Length, 16·0; expanse, 21·50; wing, 6·0; tail from vent, 4·42; tarsus, 0·75; bill from gape, 4·0; at front, 3·33; closed wings fall short of end of tail, 3·10; weight, 7·62 ozs. Bill and legs deep purplish red; irides dark brown.

21st May 1878, *Female.*—Length, 16·50; expanse, 21·75; wing, 6·16; tail from vent, 4·83; tarsus, 0·66; bill from gape, 4·0; at front, 3·50; closed wings fall short of end of tail, 3·33; weight, 7·67 ozs. Bill fine pinkish red, with the culmen and tips for 0·50 dusky; irides brown; legs scarlet; claws horny; ovaries minute.

24th May 1878, *Male.*—Length, 15·75; expanse, 21·50; wing, 5·75; tail from vent, 4·50; tarsus, 0·62; bill from gape, 4·12; at front, 3·50; closed wings fall short of end of

tail, 3·0; weight, 6·12 oz. Irides dark brown; legs fine coral red; claws horny; orbits clothed with white down; bill fine pinkish red, tipped dusky; testes small.

Rather common. This species does not hunt over so much ground as *C. rudis*, but sits on a tree overhanging water, for hours, occasionally darting down on any passing fish. Very noisy. I have failed to find the nest. A permanent resident.

128.—Halcyon amauropterus, *Pearson.*

19*th May* 1878, *Male.*—Length, 14·60; expanse, 20·25; wing, 5·50; tail from vent, 4·10; tarsus, 0·62; bill from gape, 3·66; at front, 3·0; closed wings fall short of end of tail, 2·25; weight, 5·37 ozs. Irides dark brown; orbits clothed with tiny white feathers; eyelids brick red; bill crimson; legs scarlet.

The only one I saw; it was sitting on a mangoe tree, which overhung a tank in my compound, and did not take any notice of me when approaching to shoot it. It was in very good condition. This was more than 100 miles from the sea, but less than half that distance from the upper portion of the tidal estuary of the Megna.

129.—Halcyon smyrnensis, *Lin.*

2*nd February* 1878, *Female.*—Length, 11·50; expanse, 16·0; wing, 4·92; tail from vent, 3·58; tarsus, 0·68; bill from gape, 2·66; at front, 2·08; closed wings fall short of end of tail, 1·75.

11*th April* 1878, *Male.*—Length, 11·0; expanse, 16·0; wing, 4·50; tail from vent, 3·08; tarsus, 0·58; bill from gape, 2·75; at front, 2·18; closed wings fall short of end of tail, 1·58; weight, 2·75 ozs. Irides dark brown; legs fine red; bill fine red, with the colour paling towards the tip.

Common and permanent resident; is a very noisy bird, and is found at times far away from water. Very partial to crickets, for which it watches from the trees bordering the different fields. I once found its nest hole in Sylhet high up on a "teelah" amongst tea bushes, and far away from water, but failed to get its eggs in Furreedpore.

134.—*Alcedo bengalensis, *Gmel.*

Common during June to December, after which I failed to see a single bird, and therefore conclude it must leave the district and go elsewhere to breed. I have repeatedly seen this species, when flushed from its perch, hover in the air like *C. rudis*, but have not seen it do so when taking a fish. They frequent beels, tanks, and creeks, and the wooded banks of rivers.

136.—Ceryle rudis, *Lin.*

24*th April* 1878, *Male.*—Length, 11·25; expanse, 18·0; wing, 5·10; tail from vent, 3·0; tarsus, 0·50; closed wings fall short of end of tail, 1·58; bill from gape, 2·85; at front, 2·37; weight, 3·37 ozs.

19*th June* 1878, *Female.*—Length, 11·50; expanse, 18·0; wing, 5·42; tail from vent, 3·0; tarsus, 0·50; bill from gape, 3·12; at front, 2·50; closed wings fall short of end of tail, 1·25; weight, 3·12 ozs. Irides dark brown; mouth, inside fleshy yellow; bill and legs black; ovaries minute.

Excessively common. A very cheery bird, always on the move. Nests in holes excavated by themselves in river banks. Length of gallery from 1½ to 4 feet, no lining to egg chamber. I have taken a clutch of 5 eggs (fresh) on the 26th October 1877, and found a solitary half grown young one in another nest, on the same date; the last nest of the season was secured on the 1st March 1878, with two hard set eggs and two callow young; these birds stick mostly to the large rivers, although there may be beels and tanks near.

149.—Palæornis purpureus, *Müll.**

13*th June* 1878, *Male.*—Length, 9·25; expanse, 14·50; wing, 5·08; tail from vent, 3·75; tarsus, 0·48; bill from gape, 0·66; at front, 0·75; closed wings fall short of end of tail, 2·0; weight, 2·37 ozs. Legs, bluish grey; irides, thin circle of blue inside and one of yellowish white outside.

Very common during the latter half of the year, flying in large flocks. They are very noisy, and do a deal of damage to the grain crops. The first arrivals this season were observed on the first of June. Very partial to bamboo clumps. In my house at Howrah is a tame bird of this species, a female, which was moulting in July, and the horny covering of the mandibles dropped off after first becoming of a black colour; it then had a sickly white appearance, with patches of yellow about the upper one, and was so tender that the bird could eat only boiled rice. It has done moulting, but there are no signs of the horny covering again growing. After a couple of months the bill became whitish and has remained so for six months.

157.—*Picus macei, *Vieill.*

Pretty common and a permanent resident. One pair excavated a hole in the dead branch of a *Poinciana regia* tree

* This is quite correct; the specimens belong to the Southern and Western form and not, as from the locality might have been expected, the Eastern form.—Ed.

in the factory compound in March, but they abandoned it. This bird's note has a sharp metallic sound like " click" " click."

171.—Gecinus striolatus, *Blyth.*

8th December 1877, *Male.*—Length, 10·12 ; expanse, 14·25 ; wing, 4·58 ; tail from vent, 3·66 ; tarsus, 1· ; bill from gape, 1·33 ; at front, 1·12 ; closed wings fall short of end of tail, 2·16.

10th March 1878, *Female.*—Length, 10·25 ; expanse, 14·0 ; wing, 4·58 ; tail from vent, 3·50 ; tarsus, 0·80 ; bill from gape, 1·80 ; at front, 1·10 ; closed wings fall short of end of tail, 2·16 ; weight, 3·12 ozs. Irides red ; legs dingy green ; bill yellow, with a dusky tinge above.

23rd March 1878, *Female.*—Length, 10·75 ; expanse, 15·0 ; wing, 4·75 ; tail from vent, 3·58 ; tarsus, 0·83 ; bill from gape, 1·30 ; at front, 1·04 ; closed wings fall short of end of tail, 2·08 ; weight, 2·87 ozs. Irides red ; legs dusky green ; bill, below orange, tip, dusky, above horny.

Rather common and a permanent resident, as I have noticed them all the year round. None of the three birds secured showed signs of breeding on dissection. In the cold weather, when passing a date tree from which the juice was running out, I saw one of this species in company with a *A. tristis* and *M. terricolor*, deliberately drinking the juice. The birds were so close that had I had a hunting whip by me, I could have knocked them down. Although so close, the Woodpecker, who, I observed, was drinking and not feeding on the flies and insects, generally to be seen hovering over the juice pots, never noticed me, although the other two birds flew away. They are very partial to date trees.

178.—Micropternus phaioceps, *Blyth.*

14th June 1878, *Male.*—Length, 9·75 ; expanse, 15·25 ; wing, 4·50 ; tail from vent, 3·08 ; tarsus, 0·68 ; bill from gape, 1·15 ; at front, 0·86 ; closed wings fall short of end of tail, 1·83 ; weight, 2·87 ozs. Irides dark brown ; eyelids light plumbeous ; legs greyish brown ; claws horny ; bill pale horny black ; base of lower mandible plumbeous ; mouth, inside fleshy.

14th June 1878, *Female.*—Length, 9·25 ; expanse, 15·25 ; wing, 4·50 ; tail from vent, 3·0 ; tarsus, 0·70 ; bill from gape, 1·15 ; at front, 0·92 ; closed wings fall short of end of tail, 1·50 ; weight, 2·5 ozs. Irides dark brown ; eyelids light plumbeous ; legs greyish brown ; claws horny ; bill blackish horny ; base of lower mandible plumbeous ; mouth, inside fleshy.

Far from common. The above-mentioned pair I shot while flying about the garden. The call is like the first two notes of

B. aurantius with a sudden stop. As a rule they are silent birds, and do not move about so much as their congeners. The pair I shot did not appear to be breeding. I have seen two or three more of this species which I failed to secure.

180.—Brachypternus aurantius, *Lin.*

18*th January* 1878, *Female.*—Length, 11·75; expanse, 17·10; wing, 5·58; tail from vent, 4·25; tarsus, 0·91; bill from gape, 1·42; at front, 1·20; closed wings fall short of end of tail, 2·25.

11*th March* 1878, *Female.*—Length, 11·25; expanse, 16·0; wing, 5·33; tail from vent, 4·25; tarsus, 0·83; bill from gape, 1·45; bill at front, 1·16; closed wings fall short of end of tail, 1·60; weight, 2·87 ozs. Irides red.

19*th May* 1878, *Male.*—Length, 11·40; expanse, 17·10; wing, 5·16; tail from vent, 3·92; tarsus, 0·90; bill from gape, 1·56; bill at front, 1·30; closed wings fall short of end of tail, 2·08; weight, 3·87 ozs. Irides dark brown; bill black; legs pea green; claws black.

19*th May* 1878, *Female.*—Length, 11·10; expanse, 17·50; wing, 5·42; tail from vent, 4·08; tarsus, 0·90; bill from gape, 1·58; at front, 1·30; closed wings fall short of end of tail, 2·0; weight, 3·75 ozs. Irides red (maroon); bill black; legs greenish; claws black; ovaries minute.

Very common and a permanent resident. A noisy bird. It must breed in June and July, because none of those that I dissected showed signs of breeding. I have several times seen this bird alight on the stems of trees as low down as nine inches from the ground.

195.—Cyanops asiatica, *Lath.*

16*th January* 1878, *Female.*—Length, 9·0; expanse, 12·50 wing, 4·0; tail from vent, 3·0; tarsus, 1·0; bill from gape, 1·33; at front, 0·95; closed wings fall short of end of tail, 2·20.

30*th May, Male.*—Length, 9·0; expanse, 12·75; wing, 3·75; tail from vent, 2·80; tarsus, 0·92; bill from gape, 1·37; at front, 1·0; closed wings fall short of end of tail, 2·30; weight 2·62 ozs. Irides light brown; eyelids red brown; legs greenish; claws horny; bill—gape, above and below, yellowish for half the length, rest dusky; orbital skin brown; mouth, inside bluish green. This bird, on dissection, showed the breeding time to be near.

Very common, and a permanent resident. I believe it to be entirely frugivorous, as insects could never be detected in their stomachs. Numbers of this species and *X. hæmacephala* are seen

together on Peepul (*Ficus religiosa*) trees when in fruit. Breeds in June and July in holes in trees excavated by themselves.

197.—Xantholæma hæmacephala, *Müll.*

26*th February* 1878, *Male.*—Length, 6·40; expanse, 10·50; wing, 3·08; tail from vent, 1·50; tarsus, 0·80; bill from gape, 0·92; at front, 0·70; closed wings fall short of end of tail, 1·25; weight, 1·75 oz.

25*th May* 1878, *Male.*—Length, 6·10; expanse, 10·50; wing, 3·16; tail from vent, 1·83; tarsus, 0·70; bill from gape, 1·04; at front, 0·60; closed wings fall short of end of tail, 1·16; weight, 1·37 oz. Legs light coral red; claws black; irides dark brown; eyelids bluish; bill, base below whitish; basal edges above, bluish white; rest black. This latter is evidently a young bird.

Very common indeed; to be found on any *Ficus* tree that may be in fruit. It is surprising what quantities of that fruit this species and the last are capable of eating. It is a permanent resident, and breeds from February to April, in holes excavated by themselves, in any soft-wooded tree, selecting a dead branch and boring a hole generally from the under side. Every year a new hole is bored. I have never found more than two eggs in each hole, and very often only a single young one. A nest that I found in a "jeel" tree, on the 27th February 1878, contained one young about a week old, so that this egg must have been laid in the latter end of January.

203.—*Cuculus micropterus, *Gould.*

Far from rare. Their well-known cry is first heard in February. Wary birds never allowing me to approach close enough to risk a shot, so did not secure a specimen.

205.—Hierococcyx varius, *Vahl.*

25*th January* 1878, *Male.*—Length, 13·0; expanse, 22·0; wing, 7·58; tail from vent, 7·50; tarsus, 1·0; bill from gape, 1·14; at front, 0·75; closed wings fall short of end of tail, 3·0. Irides yellowish brown.

6*th March*, *Female.*—Length, 13·08; expanse, 21·0; wing, 7·25; tail from vent, 6·83; tarsus, 1·0; bill from gape, 1·25; at front, 0·78; closed wings fall short of end of tail, 2·25; weight, 3·5 ozs. Legs greenish yellow; irides stone colour—with paler outer circle; claws yellow; orbits yellow; bill, above black; below, greenish.

13*th April*, *Female.*—Length, 13·50; expanse, 22·0; wing, 7·50; tail from vent, 7·0; tarsus, 0·92; bill from gape, 1·22;

at front, 0·83; closed wings fall short of end of tail, 2·25; weight, 4 ozs. Irides stone colour; legs and orbits bright yellow; claws yellowsh white; bill, blackish above, green beneath; gape bright yellow; naked skin round eyes greenish.

2nd June, Female.—Length, 13·0; expanse, 22·0; wing, 6·92; tail from vent, 6·75; tarsus, 0·92; bill from gape, 1·24; at front, 0·83; closed wings fall short of end of tail, 2·75; weight, 4·12 ozs. Legs and claws yellow; mouth, inside light yellow; irides stone colour, tinged yellow; gape and eyelids bright yellow; orbital skin light dingy green; bill light greenish; the terminal half of upper mandible dusky; ovaries containing yolks, size of S. S. G. shot.

The females are more rufous than the males. Very common; frequents wooded and cultivated country, and is a source of terror to all the small birds. The female bird has a harsh grating call quite different from that of the male.

208.—Cacomantis passerinus, *Vahl.*

16th December 1877, *Female.*—Length, 9·25; expanse, 11·5; wing, 4·42; tail from vent, 4·58; tarsus, 0·5; bill from gape, 0·83; at front, 0·66; closed wings fall short of end of tail, 2·42. Irides dark brown, with an outer edge of earthy brown; bill, upper mandible black, lower, reddish brown; tarsus horny; soles of feet yellowish; mouth, inside beautiful deep orange.

I came across it in a small plain studded with babool trees. A King Crow was worrying it. Since then I have on two occasions come across a bird which looked like this species, but with a deal of rufous on the breast; this bird had a regular cuculine head. Frequents hedgerows and the outskirts of villages.

209.—Cacomantis threnodes, *Cab.* (S.F., VI, 158.)

2nd January 1878.—Length, 9·0; expanse, 12·0; wing, 4·37; tail from vent, 5·0; tarsus, 0·75; bill from gape, 0·85; bill at front, 0·58; closed wings fall short of end of tail, 2·50. Irides light brown; legs fleshy yellow; claws horny; lower mandible dusky yellow; upper mandible horny; mouth, inside deep pinkish red.

The only one I procured; it settled on one of the small raised footpaths ryots have as borders to their fields (called "ile") and between two fields of rapeseed when I knocked it over; it had just flown out from some forest and cane jungle.

212.—Coccystes jacobinus, *Bodd.*

21st May 1878, *Female.*—Length, 13·50; expanse, 17·0; wing, 5·75; tail from vent, 6·70; tarsus, 1·0; bill from gape,

1·15; bill at front, 0·80; closed wings fall short of end of tail, 3·58; weight, 2·37 ozs. Bill black; legs light plumbeous; irides brown; ovaries partly enlarged.

Very common during the rains, at the close of which they leave the district. The first bird of the season I saw on the 15th May. Cultivated and grassy plains with small trees and bushes scattered about are their favorite resorts.

214.—Eudynamys honorata, *Lin.*

19*th May* 1878, *Female.*—Length, 16·0; expanse, 23·25; wing, 7·25; tail from vent, 7·42; tarsus, 1·25; bill from gape, 1·57; bill at front, 1·09; closed wings fall short of end of tail, 4·16; weight, 7·12 ozs. Irides crimson; bill pea green; legs slaty blue.

23*rd May* 1878, *Male.*—Irides smoky; legs plumbeous; bill black; terminal half of lower mandible pale dusky. A young bird shot while in company with two crows; mouth, inside pinkish.

Very common, and a permanent resident. In my factory compound were several large *Ficus*, *Casuarina* and different fruit trees, which from March to May seemed to be alive with them. Every day I used to shoot a couple for a young *Bubo coromandus* I had, but still they came; they are very fond of fruit.

217 *quat.*—Centrococcyx intermedius, *Hume.*

31*st January* 1878, *Male.*—Length, 17·0; expanse, 23·50; wing, 7·50; tail from vent, 9·0; tarsus, 2·25; bill from gape, 1·67; bill at front, 1·25; closed wings fall short of end of tail, 5·25. Irides crimson.

15*th June*, *Male.*—Length, 18·50; wing, 7·75; tail from vent, 9·25; tarsus, 2·25; bill from gape, 1·70; bill at front, 1·25; closed wings fall short of end of tail, 5·58. Irides blood red; legs and bill black; soles of feet dirty white.

Common, and a permanent resident; breeds in July and August, though I have failed to get their eggs. These birds have a habit of calling at night. When one commences to call all that are within earshot follow suit.

218.—Centrococcyx bengalensis, *Gmel.*

18*th May* 1878, *Male.*—Length, 13·50; expanse, 17·0; wing, 5·75; tail from vent, 7·25; tarsus, 1·50; bill from gape, 1·16; bill at front, 0·89; closed wings fall short of end of tail, 4·25; weight, 2·87 ozs. Bill black; irides red brown; legs plumbeous; eyelids bluish grey.

Far from rare. I cannot recollect ever having noticed this species in the cold weather; but from the beginning of May I observed them frequenting "Sun" grass fields, which they are very partial to.

232.—Cinnyris zeylonica, *Lin.*

20th April 1878.—Length, 4·75; expanse, 6·50; wing, 2·10; tail from vent, 1·46; tarsus, 0·58; bill from gape, 0·75; at front, 0·62; closed wings fall short of end of tail, 0·60; weight, 0·37 oz. Irides dull red; bill and legs black.

25th April.—Length, 4·25; expanse, 6·50; wing, 2·20; tail from vent, 1·50; tarsus, 0·58; bill from gape, 0·75; at front, 0·62; closed wings fall short of end of tail, 0·70; weight, 0·37 oz. Irides dark red.

Common and a permanent resident; could not find a nest.

234.—Cinnyris asiatica, *Lin.*

Very common indeed, so much so that I could have shot eight or nine any day I liked. They are to be found on low bushes in a garden as well as on the tops of high Mangoe trees wherever these are in flower. I failed to find a nest, but noticed that they were to be seen the whole year round.

238.—*Dicæum erythrorhyncha, *Lath.*

I shot one on the 5th May 1878, on a babool tree, and as it was late in the afternoon, kept it on the table intending to preserve it next morning, but a rat walked off with it at night. The measurements agreed with those given by Dr. Jerdon. Bill was flesh coloured; being such a small bird it escapes observation. Although I shot only that one, there is no doubt that the bird is not rare in the district, as I have often noticed dull-coloured tiny birds which certainly were not the females of *Cinnyris asiatica.*

254.—Upupa epops, *Lin.*

1st February 1878, *Female.*—Length, 12·0; expanse, 17·25; wing, 6·0; tail from vent, 4·33; tarsus, 0·89; bill from gape, 2·41; at front, 2·0; closed wings fall short of end of tail, 1·33.

Rather common in the cold weather; keeping to open country—they may often be seen feeding along the road sides.

258.—Lanius tephronotus, *Vigors.*

21st October 1877 ?—Length, 8·8; wing, 3·75; tail from vent, 4·12; tarsus, 1. Shot while fighting with a *L. nigriceps* in my garden.

19*th March* 1878, *Female.*—Length, 9·08; expanse, 12·0; wing, 3·75; tail from vent, 4·25; tarsus, 1·0; bill from gape, 0·92; at front, 0·60; closed wings fall short of tail, 0·60. Bill black; base pinkish; legs horny.

No. 1 is evidently a bird of the year. It wants the rufous tinge on the lower breast, observable in the adult bird. The edging of secondaries is pale rufous in the young, but dark in the adult.

By no means common; not having noticed it in the rains, I conclude it is a migratory bird; it frequents orchards and hedgerows, and is very seldom seen in such open country as its congeners. I only observed about half a dozen birds during the year.

259.—Lanius nigriceps, *Frankl.*

25*th January* 1878?—Length, 10·17; expanse, 12·08; wing, 3·75; bill from gape, 1·0; at front, 0·59; tail from vent, 5·25; tarsus, 1·16; closed wings fall short of end of tail, 4·0.

1*st February* 1878, *Female.*—Length, 9·33; expanse, 11·75; wing, 3·66; tail from vent, 4·92; tarsus, 1·16; bill at front, 0·62; bill from gape, 0·83; closed wings fall short of end of tail, 3·33.

11*th March* 1878, *Male.*—Length, 10·; expanse, 11·50; wing, 3·60; tail from vent, 4·75; tarsus, 1·16; bill from gape, 1·0; at front, 0·60; closed wings fall short of end of tail, 3·66; weight, 1·62 oz.

9*th May* 1878, *Male.*—Length, 10·0; expanse, 11·0; wing, 3·80; tail from vent, 4·92; tarsus, 1·16; bill from gape, 1·0; at front, 0·64; closed wings fall short of end of tail, 3·66; weight, 1·62 oz. Bill and legs black.

14*th May* 1878, *Young Female.*—Length, 8·60; expanse, 11·50; wing, 3·58; tail from vent, 3·83; tarsus, 1·08; bill from gape, 0·98; at front, 0·58; closed wings fall short of end of tail, 2·75; weight, 1·62 oz. Legs plumbeous; bill horny above, bluish beneath.

14*th May* 1878.—*Young Male*, shot in company with the last one.—Length, 8·0; expanse, 11·0; wing, 3·50; tail from vent, 3·75; tarsus, 1·16; bill from gape, 0·95; at front, 0·60; closed wings fall short of end of tail, 2·20; weight, 1·62 oz. Irides dark brown; legs plumbeous.

15*th May* 1878.—*Nestling* just left nest.—Length, 8·0; expanse, 8·50; wing, 2·75; tail from vent, 1·50; tarsus, 1·0; bill from gape, 0·90; at front, 0·56; closed wings fall short of end of tail, 0·92; weight, 1·12 oz. Legs fleshy blue; irides stone colour; bill horny above, pale beneath; mouth, inside yellow.

15*th May* 1878.—*Nestling Male*, shot with the last one.—Length, 7·58; expanse, 8·82; wing, 2·75; tail from vent, 1·33; tarsus, 1·08; bill from gape, 0·85; at front, 0·58; closed wings fall short of end of tail, 0·50; weight, 1·12 oz. Irides stone colour; legs fleshy blue; bill horny above, pale beneath; mouth inside yellow.

Excessively common, and a permanent resident. Prefers open plains interspersed with bushes; small bushes on road sides are also favourite haunts of theirs. Breeds in the district. I took ten nests this season from the 11th April to 4th June, with from one to five eggs in each. Four nests were placed in bamboo clumps from 9 to 30 feet high, one 40 feet from the ground on a *Casuarina* tree, one 20 feet up in a Bur tree, and the rest in Babool trees at from 6 to 15 feet high from the ground. There is no attempt at concealment. The nest is a deep cup fixed in a fork, and is made of grasses with a deal of the downy tops of the same for an outside coating; this peculiarity at once distinguishes the nest of this species. The description given by Mr. Hodgson, of a nest found by him on the 16th May at Jahar Powah, in "Nests and Eggs," Vol. I., p. 172, correctly describes the nests I have found. This species imitates the call of several kinds of small birds, as Sparrows, Kingcrows, &c., and I have often been deceived by it.

261.—Lanius cristatus, *Lin.*

11*th April* 1878, *Male.*—Length, 8·10; expanse, 11·0; wing, 3·50; tail from vent, 3·66; tarsus, 1·04; bill from gape, 0·86; bill at front, 0·50; closed wings fall short of end of tail, 2·25; weight, 1·25 oz. Legs bluish horny; bill, above horny, below, pinkish white; irides brown.

23*rd April* 1878, *Male.*—Length, 7·83; expanse, 10·33; wing, 3·50; tail from vent, 3·92; tarsus, 0·92; bill at front, 0·54; bill from gape, 0·84; closed wings fall short of end of tail, 2·33; weight, 1·12 oz. Legs leaden blue; claws horny; irides dark brown; bill above horny, towards base fleshy; lower mandible at base fleshy, rest horny.

22*nd January* 1878 ?—Length, 7·58; expanse, 10·33; wing, 3·25; tail from vent, 3·42; tarsus, 0·91; bill from gape, 0·84; bill at front, 0·56; closed wings fall short of end of tail, 2·16.

9*th April* 1878, *Female.*—Length, 7·75; expanse, 9·50; wing, 3·25; tail from vent, 3·42; tarsus, 1·0; bill from gape, 0·86; bill at front, 0·58; closed wings fall short of end of tail, 2·0; weight, 1·12 oz. Irides brown; bill base below fleshy, rest black; legs bluish.

Common during the cold weather. The earliest date on which I have noticed this bird in the district was 10th October 1877, and the latest date 7th May 1878. On the 1st May this year I saw one of these birds in the garden of a house at Howrah where I was staying.

[The second specimen is remarkable as being inseparable from the Malayan *superciliosus*. The same broad pure white supercilium continued forwards as a frontal band, and backwards over two-thirds of the black ear-coverts; the same deep red head. The bird is an almost perfect adult, only a few traces of bars remain on the sides of the breast.

As far as I can make out *cristatus* and *superciliosus* are the same birds. *Cristatus* being the name usually applied to the more or less immature specimens, which we almost exclusively obtain in India, and *superciliosus* the name applied to the almost perfect adults which we, as a rule, obtain in the Malay Peninsula; but I have typical *cristatus* dull red brown with inconspicuous supercilium, and scarcely perceptible white or rather pale frontal band from the Straits, (this being a younger bird like most of those we get in India); and, besides this Furreedpore adult, I have two or three other Indian adults inseparable from Malayan ones, and a dozen, at least, nearly adults intermediate between these and the mass of my Indian specimens which latter show much barring on the lower surface, and which are what are usually set down as *cristatus*.

From the brightest Malayan *superciliosus*, which is identical with the bird figured by Lord Walden as *phœnicurus*, Ibis, 1867, pl. 5, fig. 2, to the ordinary *cristatus* of India, specially Calcutta and its neighbourhood, which, as regards coloration of the upper surface, is accurately represented in fig. 1 of the same plate, (which purports to be *isabellinus*,) I have a perfectly unbroken series of forms. At any rate, I can discover no means by which they can be separated.

Of course when referring to fig. 1 of the plate indicated, I do not overlook that this plate exhibits a white wing spot not found in *cristatus*, and that usually all *cristatus* colored on the head, back, rump and tail, like this figure, show more or less of fine barrings on the breast, but as regards the colors of the parts above enumerated the plate in question accurately represents the ordinary Bengal *cristatus*.—A. O. H.]

265.—Tephrodornis pondiceriana, *Gmel.*

24*th April* 1878, *Male.*—Length, 7·0; expanse, 11·0; wing, 3·42; tail from vent, 2·75; tarsus, 0·66; bill from gape, 1·0; bill at front, 0·75; closed wings fall short of end of

tail, 1·92 ; weight, 0·87 oz. Bill dusky horny ; legs plumbeous brown ; irides greenish yellow.

The only one I secured ; it was one of a pair that was hopping about some babool trees in the factory garden and twittering like a *L. cristatus*. I never saw any others. The generative organs were rather enlarged.

?268.—Volvocivora sykesii, *Strickl.*

22*nd January* 1878, *Young bird* ?—Length, 7·59 ; expanse, 11·25 ; wing, 3·75 ; tail from vent, 3·25 ; tarsus, 0·81 ; bill from gape, 0·80 ; bill at front, 0·58 ; closed wings fall short of end of tail, 1·50. Irides brown ; bill above horny, below base yellow ; tip horny ; legs blackish.

The only one I observed; I shot it off a date tree, of which there were a number as well as several babool trees, on the outskirts of a village.

269.—Volvocivora melaschistus, *Hodgs.*

22*nd January*, 1878 ?—Length, 9·0 ; expanse, 13·25 ; wing, 4·50 ; tail from vent, 4·0 ; tarsus, 0·91 ; bill from gape, 0·95 ; bill at front, 0·58 ; closed wings fall short of end of tail, 2·08. Irides dark brown.

The only one I saw ; it had flown into a low bush, one of many that were in a large cultivated plain. It dodged about the bush for some seconds, but never uttered a sound even when wounded and in hand.

270.—*Graucalus macei, *Less.*

On the 2*nd March* 1878 I came across one flying about a plain interspersed with babool trees ; and, although it was chased about, I could not get a shot. It was calling. I am not mistaken as to the bird, for when in Sylhet and Dacca I shot numbers of this species and know it well. I never saw or heard another, so it must be rare. It utters its loud whistling call generally when on the wing. In the Western Dooars I have seen them flying about the grassy plains, and when these are burnt, the stems of the larger kinds of grasses remain half charred, and these birds diligently search each, resting on them, for insects ; when doing so they allow a person to approach within gunshot.

276.—Pericrocotus peregrinus, *Lin.*

1*st April* 1878, *Female.*—Length, 6·0 ; expanse, 8·0 ; wings, 2·58 ; tail from vent, 2·92 ; tarsus, 0·58 ; bill from gape, 0·56 ; bill at front, 0·31 ; closed wings fall short of end of

tail, 1·83; weight, 0·37 oz. Bill and legs black; irides dark brown.

Rather common, and a permanent resident. Very often seen in flocks of eight and ten hunting about the leaves of trees for insects. I have never seen them in swamps.

278.—Buchanga atra, *Herm.*

24*th April* 1878, *Female.*—Length, 11·75; expanse, 17·50; wing, 5·75; tail from vent, 6·0; tarsus, 0·90; bill from gape, 1·12; bill at front, 0·75; closed wings fall short of end of tail, 3·25; weight, 2·12 ozs. Bill and legs black; irides dark brown.

8*th May, Male.*—Length, 12·62; expanse, 18·25; wing, 5·83; tail from vent, 7·04; tarsus, 0·83; bill from gape, 1·12; bill at front, 0·80; closed wings fall short of end of tail, 4·30; weight, 2·37 ozs. Irides maroon red; bill and legs black.

8*th May, Female.*—Length, 11·58; expanse, 17·50; wing, 5·50; tail from vent, 6·25; tarsus, 0·83; bill from gape, 1·08; bill at front, 0·75; closed wings fall short of end of tail, 3·75; weight, 2·12 ozs. Irides maroon red; bill and legs black. The above pair were shot off a nest with two eggs.

14*th May, Male.*—Length, 13·75; expanse, 17·12; wing, 5·92; tail from vent, 7·25; tarsus, 0·83; bill from gape, 1·25; bill at front, 0·87; closed wings fall short of end of tail, 4·25; weight, 2·37 ozs. Irides maroon red; mouth, inside inky black.

Excessively common. The female shot off eggs on the 8th May has white tips to the under tail-coverts. *All the birds in this part of the district seem to want the rictal spot, for I shot ever so many birds, but could not get one with the spot.* From my Nesting Notes I take the following:—

"8*th May* 1878.—*Casuarina* tree in front of the house and about 50 feet up in a fork was a nest of the usual saucer shape, of fine grass roots with a deal of spider's web on the exterior; contained two callow young, and two hard set eggs of which one was addled. The eggs were of a salmon colour with deep rusty spots here and there.

"14*th May.*—On the high road from one factory to the other was a small avenue of low Babool trees, on one of which a pair had built their nest on a branch which quite overhung the road. It was about twelve feet off the ground. Two partly incubated eggs, of the same markings and colour as the last clutch; on the same branch, and within two feet of this nest, was another deserted one with one addled egg, and which, from the appearance, must have belonged to *L. nigriceps;* the latter had been driven away by the King Crow.

"1*st June.*—Plum tree in paddy fields, and about twelve feet from the ground, was a nest of this species with one fresh egg,

coloured, &c., like the last. There were no cobwebs used to coat this nest exteriorly, the egg cavity of which measured 3½ in diameter and 1¾ in depth. There was a nest of *L. nigriceps* too on this same Plum tree, the owners of which had been driven away by the King Crows, and had left one addled egg behind. The distance between the two nests was about four feet."

282.—Chaptia ænea, *Vieill.*

1*st March* 1878, *Male.*—Length, 9·66; expanse, 14·20; wing, 4·75; tail from vent, 4·85; tarsus, 0·58; bill from gape, 1·0; bill at front, 0·50; closed wings fall short of end of tail, 2·56.

24*th April*, *Female.*—Length, 9·10; expanse, 14·0; wing, 4·58; tail from vent, 4·75; tarsus, 0·58; bill from gape, 1·0; bill at front, 0·56; closed wings fall short of end of tail, 2·56; weight, 0·87 oz. Ovaries very minute.

17*th May*, *Young.*—Length, 8·92; expanse, 12·75; wing, 4·25; tail from vent, 4·36; tarsus, 0·60; bill from gape, 1·0; bill at front, 0·65; closed wings fall short of end of tail, 2·50; weight, 0·87 oz. Irides dark brown; bill and legs black. Shot while being fed by parent bird.

8*th June*, *Female.*—Length, 9·25; expanse, 14·25; wing, 4·66; tail from vent, 4·58; tarsus, 0·58; bill from gape, 1·06; bill at front, 0·70; closed wings fall short of end of tail, 2·33; weight, 1 oz. Bill and legs black; irides dark red brown; mouth, inside blackish; ovaries minute.

Rather common. Generally to be found perching on the dead branches of high trees overlooking water, especially wherever there is a dense undergrowth of jungle. On the 1st June 1878, I secured a nest with three fresh eggs; it was built on a slender twig on the outer side of a Mangoe tree which was standing near a ryot's house, and was about fifteen feet off the ground. External diameter, 3½ inches; depth, 2 inches; internal diameter, 2¼ inches; depth, 1⅛ inches. Saucer shaped, the outside consisted of plantain leaves torn up into slips, all of which were firmly bound together by fibres of the plantain leaf and jute, which were wound round the twigs and secured the nest. Inside lining was made of very fine pieces of "Sun" grass; the pair were very pugnacious, attacking any birds coming near their nest. These birds have a clear mellow ringing whistle.

287.—Artamus fuscus, *Vieill.*

8*th December* 1877, *Female.*—Length, 6·75; expanse, 14·5; wing, 5·16; tail from vent, 2·5; tarsus, 0·58; bill from gape, 0·92; bill at front, 0·66; closed wings equal end of tail.

16*th April* 1878, *Female.*—Length, 6·96; expanse, 15·0; wing, 5·16; tail from vent, 2·42; tarsus, 0·60; bill from gape, 0·92; bill at front, 0·66; closed wings exceed tail, 0·29; weight, 1·37 oz. Irides dark brown; legs livid, the skin covered with white flakes as if chapped; mouth, inside black.

16*th April*, *Male.*—Length, 7·08; expanse, 15·0; wing, 5·25; tail from vent, 2·33; tarsus, 0·62; bill from gape, 0·92; bill at front, 0·70; closed wings exceed end of tail, 0·50; weight, 1·37 oz. Bill blue; legs livid blue; mouth, inside black.

Common, and a permanent resident; very partial to perching on the tips of Bamboos, and I have seen as many as 13 sitting side by side on a bamboo tip. I took seven nests this season, all from Date trees (*Phœnix sylvestris*), which trees are very common in the district. The nest is generally built at the junction of the leaf-stem and the trunk of the tree, though in two instances the nest was placed on a ledge from which all leaves had been removed to enable the tree to be tapped for its juice. In every instance the nest was exposed, and if any bird, even a hawk, came near, these courageous little fellows, would drive it off. My nests were found from the 5th April to 6th June; shallow saucers made of fine twigs and grasses with a lining of the same, and contained two to four eggs in each. Height of nest from ground about 12 to 15 feet. On the 17th April I took two fresh eggs from a nest, and the birds laying again, I, on the 8th May, took three more fresh eggs from the same nest. When on the wing they utter their note, generally returning to the same perch.

288.—Muscipeta paradisi, *Lin.*

10*th April* 1878, *Female.*—Length, 8·25; expanse, 10·25; wing, 3·42; tail from vent, 3·75; tarsus, 0·62; bill from gape, 1·01; bill at front, 0·56; closed wings fall short of end of tail, 2·33; weight, 0·62 oz. Irides dark brown; bill smalt blue; tip, above horny; legs smalt blue; soles white; claws horny; inside of mouth light yellow; eyelids smalt blue.

15*th April*, *Chestnut-plumaged Male.*—Length, 18·12; expanse, 10·75; wing, 3·78; tail from vent, 13·50; tarsus, 0·62; bill from gape, 1·16; bill at front, 0·75; closed wings fall short of end of tail, 11·92; weight, 0·62 oz.; elongated tail feathers (central) exceed rest of tail by 9·0. Bill cobalt blue; legs dirty lavender blue.

15*th April*, *White-plumaged Male.*—Length, 21·75; expanse, 11·25; wing, 3·75; tail from vent, 17·0; tarsus, 0·64; bill from gape, 1·16; bill at front, 0·66; closed wings fall short of end of tail, 15·75; central tail feathers exceed others by 12·25; weight, 0·75 oz. Bill and eyelids cobalt blue; legs

ditto. The central tail feathers are black shafted for 0·58 from the tip, then white shafted for 7·08, and the rest towards the base is black shafted.

15*th April, Chestnut-plumaged Male.*—Length, 17·75; expanse, 11·08; wing, 3·83; tail from vent, 13·0; tarsus, 0·62; bill from gape, 1·08; bill at front, 0·62; closed wings fall short of end of tail, 11·33; central tail feathers exceed others, 8·62; weight, 0·75 oz. Bill and eyelids cobalt blue; legs lavender blue; no black on shafts of central tail feathers.

15*th April, White-plumaged Male.*—Length, 10·42; expanse, 10·75; wing, 3·62; tail from vent, 5·80; tarsus, 0·58; bill from gape, 1·10; bill at front, 0·63; closed wings fall short of end of tail, 4·33; central tail feathers exceed others, 1·0; weight, 0·75 oz. Bill and legs cobalt blue; eyelids ditto; central tail feathers have the tip black shafted for 1·0, then white for 0·58, and the rest black.

15*th April, Female.*—Length, 8·58; expanse, 10·50; wing, 3·33; tail from vent, 4·16; tarsus, 0·62; bill from gape, 1·04; bill at front, 0·66; closed wings fall short of end of tail, 2·83; central tail feathers exceed others, 0·25; weight, 0·75 oz. Bill and eyelids cobalt blue; legs lavender blue; irides dark brown; no black on shafts of tail feathers, but the bases of the tail feather shafts for about 1½ inch are much lighter coloured than the rest.

16*th April, Female.*—Length, 10·58; expanse, 10·58; wing, 3·66; tail from vent, 6·10; tarsus, 0·60; bill from gape, 0·96; bill at front, 0·50; closed wings fall short of end of tail, 4·58; central tail feathers exceed others, 2·10; weight, 0·62 oz. Bill and eyelids, inky blue; legs lavender blue.

16*th April, White-plumaged Male.*—Length, 13·75; expanse, 10·83; wing, 3·66; tail from vent, 9·0; tarsus, 0·62; bill from gape, 1·04; bill at front, 0·66; closed wings fall short of end of tail, 7·50; central tail feathers exceed others, 3·66; weight, 0·75. Bill and eyelids cobalt blue; legs lavender blue; central tail feathers black shafted 0·58 from tip, then white for 1·25, rest black.

24*th April, Female.*—Length, 8·50; expanse, 10·25; wing, 3·42; tail from vent, 4·10; tarsus, 0·66; bill from gape, 1·04; bill at front, 0·56; closed wings fall short of end of tail, 2·75; central tail feathers exceed others, 0·25; weight, 0·62 oz. No black on tail feather shafts; bill cobalt blue; tip horny; legs lavender blue; irides dark brown; mouth, inside yellow; ovaries very minute.

25*th April, Chestnut Male.*—Length, 19·0; expanse, 10·50; wing, 3·54; tail from vent, 14·50; tarsus, 0·60; bill from gape, 1·08; bill at front, 0·66; closed wings fall short of end

of tail, 13·0; central tail feathers exceed others, 10·16; weight, 0·75 oz. Bill and orbits cobalt blue; legs lavender blue; mouth, inside greenish. One of the central tail feathers is 1·54 longer than the other, and both are black shafted for their whole length; the basal halves of both have the webs white, while those of the terminal halves are chestnut; the second tail feather on the left hand side is pure white, narrowly margined with black on the outside of the exterior web to near the tip, and there is not even a tinge of ashy on any of the feathers of the breast or abdomen which are pure white; rest of body chestnut.

12*th June*, *White-plumaged Male*—Length, 19·50; expanse, 11·20; wing, 3·83; tail from vent, 15·25; tarsus, 0·75; bill from gape, 1·16; bill at front, 0·70; closed wings fall short of end of tail, 13·50; central tail feathers exceed others, 10·33; weight, 0·75 oz. Irides dark brown; eyelids and bill cobalt blue; mouth, inside greenish yellow; legs lavender blue; central tail feathers black shafted for 0·42 from tip, then white for 5·08, rest black.

Rather rare, except during April and May, when they become common; the long-tailed birds, however, are seen in numbers only for the latter half of April, after which a stray one is occasionally met with. The short-tailed chestnut birds I have seen all the year round, but they are far from common. I shot a white-plumaged bird in company with a small chestnut one (which I failed to get), and on dissection the testes were found to be very enlarged, so that it is not at all improbable that some pairs do breed in the district. The natives say they do, but their assertions must be taken *cum grano;* they call them "Doodhraj" (king of milk); when a bird has once been observed it must not be lost sight of even for a couple of seconds, or it is off, for they are perpetually on the move. I have seen a small chestnut one hopping about a fence within a foot of the ground; these birds keep to bamboo and tree jungle.

291.—Leucocerca albicollis, *Vieill.*

13*th April* 1878, *Male.*—Length, 7·50; expanse, 9·0; wing, 3·0; tail from vent, 4·12; tarsus, 0·68; bill from gape, 0·61; bill at front, 0·43; closed wings fall short of end of tail, 2·58; weight, 0·37 oz. Irides dark brown; bill and legs black; the central tail feathers distinctly barred darker.

A few pairs always seen in the Mangoe topes, in which they delight to remain: is a permanent resident; has a sharp twittering note, very like that of *M. paradisi*, for which I have often mistaken it; is continually snapping its beak and going from branch to branch with a short jerky tumbling flight. I took one

nest on the 18th May 1878 with two fresh eggs; it was attached to one of the outer twigs of a Mangoe tree which overhung a dry nullah overgrown with cane jungle and was about 8 feet off the ground. External diameter 2·16, and depth 2·0. Internal diameter 1·75, and depth 0·75. The nest was of the shape of a wineglass, and composed externally of very fine grass and cobwebs, with a lining of finer grasses; they had broken off the three leaves, leaving the stumps to support the nest.

301.—*Stoporala melanops, *Vig.*

Rather common from November to February. Frequents orchards and hedgerows. I unfortunately did not preserve the specimens shot. Its peculiar blue colour easily distinguishes it.

323.—Erythrosterna albicilla, *Pallas.*

20*th January* 1878.—Length, 4·79; expanse, 7·75; wing, 2·67; tail from vent, 2·10; tarsus, 0·69; bill from gape, 0·58; bill at front, 0·33; closed wings fall short of end of tail, 1·0. Irides light brown.

Very common during the cold weather. Leaves the district early in March. It frequents hedges and bushes about cultivation, readily entering gardens; it is very fearless, and remarkably silent.

387.—Trichastoma abbotti, *Blyth.*

26*th April* 1878, *Male.*—Length, 6·50; expanse, 8·66; wing, 2·85; tail from vent, 2·10; tarsus, 0·92; bill from gape, 0·93; bill at front, 0·70; closed wings fall short of end of tail, 1·08; weight, 0·87 oz. Irides red brown; legs fleshy; bill bluish horny at base, above dusky.

Not common, but a permanent resident, as I have noticed them all the year round. They cling to brushwood and canebrakes, and I cannot call to mind ever having seen them high up in trees. Insects are their food, in search of which they may be seen hopping about, and do not pay any attention to a person coming close. If they did not allow of such a near approach, one would never catch a sight of them in the tangled jungles they frequent, and as it is difficult to secure a good specimen, the majority being only seen when almost within arms reach and being consequently blown to bits notwithstanding reduced charges of powder and shot.

396.—Timalia bengalensis, *God.-Aust.*

12*th June* 1878, *Male.*—Length, 6·75; expanse, 6·83; wing, 2·42; tail from vent, 3·08; tarsus, 0·92; bill at front, 0·64; closed wings fall short of end of tail, 2·16; weight, 0·62 oz. Irides

brownish red ; bill black ; legs brown ; soles of feet light orange yellow ; mouth, inside black.

13*th June*.—Length, 6·75 ; expanse, 7·10 ; wing, 2·42 ; tail from vent, 2·83 ; tarsus, 0·92 ; bill from gape, 0·70 ; bill at front, 0·56 ; closed wings fall short of end of tail, 2·10 ; weight, 0·62 oz. Irides dull red ; bill black ; legs brownish horny ; soles dull yellowish ; mouth, inside black.

Pretty common. Permanent resident. Oftener found in the patches of cane and brushwood jungle growing in and around villages than in unfrequented jungle and thickets as Dr. Jerdon says. I have, however, once seen it in a field of jute, which was alongside a village. Its well-known note can be heard a long way off. I have several times found nests in course of construction, but only once secured a clutch of eggs. When the nests are being built, if the bush is at all disturbed the nest is deserted. The earliest date on which I found a nest was the 1st April 1878 ; it was half finished, and as I had pulled the cane leaves asunder to see if there were eggs, the birds deserted it. After this I found four nests in cane clumps on the sides of roads, but they were empty, and as the birds abandoned them in due course, I despaired of getting any eggs ; but on the 15th June, while going along a road, the edges of which were bounded by the small embankments natives throw up round their holdings, and which are always overgrown with "Sun" grass, I saw one of these birds with a straw in its bill disappear at the root of a small date tree. The nest could be discerned from the road. On the 20th June I returned and found two fresh eggs ; the nest was placed at the junction of the frond, and the stem of the date tree about five inches from the ground, and was an oval deep cup and measured externally 5 deep by 3·75 broad. Egg cavity 2 inches broad and 1·75 deep, composed exclusively of "Sun" grass with no lining. The eggs I got are thickly spotted, with the spots very much larger than those on the egg of *Chætornis striatus*, of which I have a number. In fact *no* egg of the latter has such large spots as these.

432.—Malacocircus terricolor, *Hodgs.*

15*th April* 1878, *Male*.—Length, 10·0 ; expanse, 13·0 ; wing, 3·92 ; tail from vent, 4·0 ; tarsus, 1·25 ; bill from gape, 1·10 ; bill at front, 0·80 ; closed wings fall short of end of tail, 2·87 ; weight, 2·75 ozs. Bill, yellowish at basal half, rest whitish ; legs yellowish white ; irides ivory white.

28*th May*, *Female*.—Length, 10·25 ; expanse, 13·0 ; wing, 4·25 ; tail from vent, 4·33 ; tarsus, 1·33 ; bill from gape, 1·17 ; bill at front, 0·83 ; closed wings fall short of end of tail, 3·0 ; weight, 2·87 ozs. Irides yellowish white ; orbital skin pale yellow ;

legs fleshy yellow ; claws ditto ; bill yellow, like ivory ; gape light orange ; mouth, inside bright orange ; ovaries minute.

Very common indeed, frequenting gardens and cultivation where parties of seven and eight may be seen hopping about the ground, feeding on insects. During the heat of the day they hunt about the branches of trees for insects that remain in the bark. On the 15th April I found a nest on the very top of a Mangoe tree about 30 feet off the ground, shooting the male as it flew off the nest. Three hard set eggs, of a deep greenish blue. Nest placed in a fork of twigs, the uppermost one, composed exclusively of "doob" grass (*Cynodon dactylon*) very loosely put together with a thin lining of the same. It measured externally 8-inches in length by 5·5 in breadth and 3 in depth. Oval shaped ; egg cavity 4·5 × 3·25 × 2.

439.—Chatorhea earlei, *Blyth.*

2nd December 1877, *Female.*—Length, 9·85 ; expanse, 10·91 ; wing, 3·33 ; tail from vent, 4·83 ; tarsus, 1·25 ; bill from gape, 1·09 ; bill at front, 0·81 ; closed wings fall short of end of tail, 4·08. Irides bright yellow.

17th January 1878, *Male.*—Length, 10·15 ; expanse, 10·50 ; wing, 3·58 ; tail from vent, 5·20 ; tarsus, 1·33 ; bill from gape, 1·07 ; bill at front, 0·80 ; closed wings fall short of end of tail, 3·58.

Very common, and a permanent resident, keeping to grass fields in small parties of seven to ten. Very noisy. On the 2nd December 1877 I found a nest with three slightly-incubated eggs in a small babool bush which stood in a "Sun" grass field. The nest was a deep cup, whose foundation was a few leaves over which "Sun" grass was woven rather loosely. Lining of fine grass roots. The nest was placed in amongst some coarse grass which grew up in the centre of the bush, and was three feet from the ground. External height, 4-inches ; diameter, 4·25 ; internal diameter, 2·5 ; depth, 2·5. Both Messrs. Marshall and Hume, in their works on "Birds Nesting," give March and September as the two periods for these birds to lay, and the clutch I found may have been exceptionally late.

441—Chætornis striatus, *Jerdon.*

21st March 1878, *Female.*—Length, 8·42 ; expanse, 11·25 ; wing, 3 50 ; tail from vent, 4·08 ; tarsus, 1·20 ; bill from gape. 0·75 ; at front, 0·50 ; closed wings fall short of end of tail, 2·60, Irides light chocolate brown ; legs fleshy ; bill fleshy at base ; rest horny. Shot off nest.

4th April Female.—Length, 8·50; expanse, 11·25; wing, 3·50; tail from vent, 3·92; tarsus, 1·16; bill from gape, 0·75; at front, 0·50; closed wings fall short of end of tail, 2·66; weight 1·37 oz. Irides dark brown; legs light purplish; bill horny above, pale beneath.

12th May, Male.—Length, 8·10; expanse, 10·50; wing, 3·50; tail from vent, 3·66; tarsus, 1·16; bill from gape, 0·80; at front, 0·46; closed wings fall short of end of tail, 2·25; weight, 1·12 oz. Irides stone brown; bill blackish horny; legs dark fleshy; mouth, inside blackish.

23rd May, Male.—Length, 8·0; expanse, 11·25; wing, 3·50; tail from vent, 3·50; tarsus, 1·08; bill from gape, 0·80; at front, 0·50; closed wings fall short of end of tail, 2·0; weight, 1·12 oz. Irides pale earth brown; bill blackish brown; legs dusky in front, paling behind; mouth inside black. Shot off nest with eggs.

Very common in long grass fields. Permanent resident. It utters its soft notes while on the wing, not only in the cold season but the year through; it is very noisy during the breeding time. Breeds in clumps of grass a few inches above as well as on the ground. I found five nests in the month of May from 23rd to 28th; one was on the ground in a field of indigo; the rest were in clumps of "Sun" grass, in the same field and composed of this grass. One nest contained three half-fledged young, and the rest contained each four slightly incubated eggs. Although they nest in "Sun" grass, which is rarely over three feet in height, it is very difficult to find the nest, as the grass generally overhangs and hides it. Only when the bird rises almost from your feet are you able to discover the whereabouts. On several occasions I have noticed this species perching on bushes.

460.—Otocompsa emeria, *Shaw.*

7th February 1878, *Female.*—Length, 7·75; expanse, 10·50; wing, 2·16; tail from vent, 3·33; tarsus, 0·75; bill from gape, 0·75; at front, 0·50; closed wings fall short of end of tail, 2·25.

Very common, and a permanent resident; it freely enters gardens and orchards. In my garden there was a Kaminee tree (*Murraya exotica*) in which I found a nest of this species on the 27th March in course of construction; and on looking at it on the 12th April, found two young that had just been hatched. Cane brakes are favorite places for them to nest in. On the 6th May I found a nest in one of these about four feet off the ground, and containing three partly incubated eggs. This species does not, as a rule, build in such exposed situations as the next; it eats the fruit of jungly trees, *Ficus, &c.*, as well as insects.

461.—Molpastes pygæus, *Hodgs.*

Excessively common and a permanent resident; commits great havoc in gardens amongst tomatoes and chillies, the red colour of which seems to attract it. Builds its nest in very exposed places and at all heights from two to thirty feet off the ground, in bushes and trees. One nest I saw containing two young ones, on the 28th June, was built on a small date tree which stood on the side of a road along which people were passing all day, and within six feet of it. The nest was only five feet from the ground, but the materials of which it was made and the colour of the bird assimilated so perfectly with the bark of the tree that detection was difficult. I have found the nests with eggs from the 3rd of April to the end of June; dead leaves and cobwebs were incorporated with the twigs and grasses in all nests which I have seen; in Dacca the natives keep these birds for fighting purposes; large sums are lost at times on these combats.

468.—Iora tiphia, *Lin.*

11*th May* 1878, *Male.*—Length, 5·58; expanse, 7·75; wing, 2·46; tail from vent, 2·0; tarsus, 0·75; bill from gape, 0·75; at front, 0·58; closed wings fall short of end of tail, 1·46; weight, 0·62 oz. Legs, feet and claws leaden blue; irides whitey brown; bill dull smalt blue, with the centre of upper-mandible black; mouth, inside inky black. Showed signs of breeding.

10*th June, Female.*—Length, 5·80; expanse, 7·50; wing, 2·33; tail from vent, 2·33; tarsus, 0·70; bill from gape, 0·75; at front, 0·56; closed wings fall short of end of tail, 1·50; weight, 0·62 oz. Legs, pale plumbeous; irides greyish; bill plumbeous, except ridge, which is dark horny; mouth, inside blue black.

10*th June, Male.*—Length, 5·42; expanse, 7·50; wing, 2·42; tail from vent, 2·12; tarsus, 0·68; bill from gape, 0·75; at front, 0·56; closed wings fall short of end of tail, 1·30; weight, 0·62 oz. Irides greyish brown; legs dark plumbeous; mouth, inside deep blue black; bill plumbeous; ridge dark horny. The above were a pair shot while going about my garden, and on dissection showed signs of breeding; tail of this male tipped yellow.

Very common, and a permanent resident; frequents gardens, orchards and hedgerows, and breeds in the district, although I failed to find the nest. I have never seen it descend to the ground; lives on insects.

472.—Oriolus melanocephalus, *Lin.*

25*th April* 1878, *Female.*—Length, 8·58; expanse, 14·50; wing, 4·92; tail from vent, 3·25; tarsus, 0·83; bill from gape,

1·16; at front, 1·0; closed wings fall short of end of tail, 1·25; weight, 1·87 oz. Legs plumbeous; claws black; irides pinkish red; bill pinkish, slightly tinged with dusky.

25*th April*, *Male*.—Length, 8·83; expanse, 15·0; wing, 4·96; tail from vent, 3·30; tarsus, 0·83; bill from gape, 1·30; at front, 1·10; closed wings fall short of end of tail, 1·25; weight, 2·12 ozs. Irides pinkish red; legs plumbeous; bill pinkish, a good deal blotched with dusky; tip dusky. The above couple were shot in company.

19*th May*, *Female*.—Length, 9·33; expanse, 16·0; wing, 5·16; tail from vent, 3·5; tarsus, 0·80; bill from gape, 1·27; at front, 1·06; closed wings fall short of end of tail, 0·75. Irides blood red; bill almost lake red; legs plumbeous; ovaries minute.

30*th May*, *Male*.—Length, 9·50; expanse, 16·33; wing, 5·25; tail from vent, 3·50; tarsus, 0·92; bill from gape, 1·32; bill at front, 1·12; closed wings fall short of end of tail, 1·16; weight, 2·12 ozs. Irides blood red; legs plumbeous; bill pink; mouth, inside pinkish.

Very common, and a permanent resident. On the 20th April I found a nest containing two half-fledged young ones; in the garden was a clump of mangoe trees, and attached to one of the outer twigs, but overhung by a lot of leaves and about 12 feet from the ground, hung the nest, of the usual type.

475.—Copsychus saularis, *Lin.*

5*th April* 1878, *Male*.—Length, 7·75; expanse, 11·25; wing, 3·75; tail from vent, 3·75; tarsus, 1·08; bill from gape, 1·0; at front, 0·70; closed wings fall short of end of tail, 2·0; weight, 0·87 oz. Bill and legs black.

Very common, and a permanent resident; affects the haunts of man; nests in cavities and holes in trees and holes in buildings. In the Dacca district I once saw a nest in a bunch of the "Kuchkela (*Musa sapientum*); two of the smaller bunches were about four inches apart, and in the cavity thus formed the bird had made its nest and reared three young; the nest was only seven feet from the ground. Another nest was placed in a hole in a date tree and was only three feet from the ground. Although they always build in holes, in every one they form a pad of fine grasses and roots with a tiny depression for the eggs, of which I have never come across more than four and sometimes only two in a nest; if the eggs are removed they lay again in the same nest. I have taken hard-set eggs as early as the 7th April in this district and up to the 15th June.

483.—Pratincola indica, *Blyth.*

24*th March* 1878, *Male.*—Length, 5·50; expanse, 8·25; wing, 2·58; tail from vent, 2·08; tarsus, 0·83; bill from gape, 0·56; at front, 0·40; closed wings fall short of end of tail, 1·0; weight, 0·37 oz. Bill and legs black.

11*th April, Female.*—Length, 5·75; expanse, 8·25; wing, 2·60; tail from vent, 1·92; tarsus, 0·83; bill from gape, 0·72; at front, 0·36; closed wings fall short of end of tail, 0·90; weight, 0·5 oz. Bill and legs black.

Common during the cold weather. Very shy; keeping well out of range; frequents bushes in open plains and cultivated fields, but avoids forest and the vicinity of villages. The last one I saw this season was on the 17th April; it has a peculiar habit of jerking its tail up and down while perching on a twig.

497.—Ruticilla rufiventris, *Vieillot.*

16*th March* 1878, *Male.*—Length, 6·0; expanse, 10·37; wing, 3·37; tail from vent, 2·66; tarsus, 0·92; bill from gape, 0·66; at front, 0·42; closed wings fall short of end of tail, 0·92; weight, 0·62 oz. Mouth, inside yellow.

Rather common in the cold weather; it affects gardens, hedgerows and cultivated fields. I have never heard it utter a note.

514.—Cyanecula suecica, *Lin.*

6*th February* 1878, *Female.*—Length, 5·50; expanse, 8·25; wing, 2·75; tail from vent, 2·0; tarsus, 1·04; bill from gape, 0·67; at front, 0·48; closed wings fall short of end of tail, 1·15

Very common in the cold weather when small parties are flushed from the rapeseed fields amongst which they are very fond of skulking.

516.—Acrocephalus dumetorum, *Blyth.*

22*nd January* 1878.—Length, 5·66; expanse, 6·50; wing, 2·42; tail from vent, 2·12; tarsus, 0·83; bill from gape, 0·66; at front, 0·46; closed wings fall short of end of tail, 1·10. Irides brown; legs greenish brown; lower bill whitish; upper ditto horny.

25*th March, Male.*—Length, 5·75; expanse, 7·25; wing, 2·33; tail from vent, 2·16; tarsus, 0·90; bill from gape, 0·70; at front, 0·50; closed wings fall short of end of tail, 1·66; weight, 0·37 oz. Irides greenish brown; legs horny; bill dusky above, fleshy beneath.

13*th April, Male.*—Length, 5·92; expanse, 7·25; wing, 2·50; tail from vent, 2·08; tarsus, 0·87; bill from gape, 0·75; at

front, 0·47; closed wings fall short of end of tail, 1·08; weight, 0·37 oz. Irides light earthy brown; legs light horny; soles greenish; bill above dusky, below fleshy; mouth, inside yellowish.

15*th April*, *Male*.—Length, 5·75; expanse, 7·33; wing, 2·42; tail from vent, 2·08; tarsus, 0·74; bill from gape, 0·62; at front, 0·42; closed wings fall short of end of tail, 1·40; weight, 0·37 oz. Irides earthy brown; legs dusky; bill dusky; base below, fleshy; mouth, inside light orange yellow.

Far from rare. Shot off trees as well as low garden hedges; has a call something like *C. saularis*, but considerably weaker. Cold weather visitant.

520.—Locustella hendersoni, *Cass.* (*v.* S. F., VI, 342.)

21*st March* 1878.—Length, 5·25; expanse, 6·25; wing, 2·08; tail from vent, 2·08; tarsus, 0·58; bill from gape, 0·54; at front, 0·42; closed wings fall short of end of tail, 1·42; weight, 0·37 oz. Bill, above horny; base below, yellow; legs pale fleshy; irides buff.

The first primary only is notched; second quill longest. I came across half a dozen birds one morning while they were sporting about amongst some tamarisk bushes on a chur, and got only one specimen. I never saw them again.

530.—Orthotomus sutorius, *G. R. Forster.*

30*th March* 1878, *Male*.—Length, 4·50; expanse, 5·25; wings 1·66; tail from vent, 1·75; tarsus, 0·80; bill from gape, 0·70; at front, 0·54; closed wings fall short of end of tail, 1·25; weight, 0·37 oz. Irides red brown; legs fleshy; bill, base bluish; rest dusky.

Very common, and a permanent resident. Frequents gardens and hedges, as well as high trees. I have frequently found the nests, which they build at various heights from the ground; one I came across was built in a species of dock plant, and only one foot from the ground. They lay in May and June, two to three eggs in each nest. During the cold weather I have never seen any of the long-tailed birds. Do these birds drop the long feathers during those months?

539.—Cisticola cursitans, *Frankl.*

14*th March* 1878, *Male*.—Length, 4·75; expanse, 6·25; wing, 2·0; tail from vent, 1·83; tarsus, 0·75; bill from gape, 0·50; at front, 0·32; closed wings fall short of end of tail, 1·58. Irides light brown; legs fleshy.

3rd June 1878, *Female*.—Length, 4·83; expanse, 5·50; wing, 1·86; tail from vent, 1·33; tarsus, 0·70; bill from gape, 0·56; at front, 0·37; closed wings fall short of end of tail, 0·80; weight, 0·25 oz. Legs fleshy; bill above dusky, rest pinkish; mouth inside fleshy. Shot off nest with five slightly incubated eggs; nests found only in Sun grass fields.

Very common, and a permanent resident. Eggs are found from the beginning of May to the end of June, in grass jungle almost on the ground. The nest is a deep cup externally of fine grasses, internally of the downy tops of the Sun grass. Its flight is very well described by Mr. Davison in STRAY FEATHERS, Vol. VI, p. 349.

543.—Drymoeca inornata, *Sykes*.

28th May 1878, *Male*.—Length, 5·16; expanse, 6·0; wing, 2·0; tail from vent, 2·60; tarsus, 0·80; bill from gape, 0·58; at front, 0·42; closed wings fall short of end of tail, 1·75; weight, 0·37 oz. Legs fleshy yellow; claws light horny; bill horny, bluish at base of lower mandible; mouth, inside black; eyelids dusky orange; irides ditto.

25th May, *Male*.—Length, 5·0; wing, 1·90; tail from vent, 2·16; tarsus, 0·75; bill from gape, 0·62; at front, 0·48; closed wings fall short of end of tail, 1·50; weight, 0·37 oz. Irides dark amber; legs fleshy yellow; bill black; mouth, inside black.

14th June, *Male*, *juv*.—Length, 4·80; expanse, 5·50; wing, 1·83; tail from vent, 2·08; tarsus, 0·75; bill from gape, 0·56; at front, 0·36; closed wings fall short of end of tail, 1·16; weight, 0·25 oz. Irides light brown; legs pale yellowish fleshy; bill horny; base fleshy; mouth, inside pale fleshy.

Pretty common in grass lands. From dissection it appeared they breed in June and July. The generative organs of No. 3 were minute, and the mouth inside fleshy, whereas the other two whose organs were large had the mouth black. This species can readily be distinguished in the jungles it affects by its white breast.

555.—Phylloscopus fuscatus, *Blyth*.

3rd April 1878.—Length, 5·0; expanse, 6·92; wing, 2·42; tail from vent, 2·16; tarsus, 0·83; bill from gape, 0·58; at front, 0·40; closed wings fall short of end of tail, 1·0; weight, 0·37 oz. Irides dark brown; legs dusky fleshy; bill yellowish at base, rest dusky; mouth, inside light yellow.

Tolerably common, frequenting gardens, hedges and thin jungle on the borders of "beels." I have never heard it utter any note.

556.—Phylloscopus magnirostris, *Blyth.*

25*th April* 1878.—Length, 5·33; expanse, 7·75; wing, 2·75; tail from vent, 2·12; tarsus, 0·75; bill from gape, 0·65; at front, 0·42; closed wings fall short of end of tail, 1·08; weight, 0·37 oz. Irides earth brown; legs carneous; claws and feet yellowish white; bill horny.

The only one I saw; it was hopping about a babool tree in my garden, and uttering a soft twittering note.

560.—Phylloscopus viridanus, *Blyth.*

13*th April* 1878, *Male.*—Length, 5·0; expanse, 7·0; wing, 2·42; tail from vent, 2·0; tarsus, 0·66; bill from gape, 0·50; at front, 0·33; closed wings fall short of end of tail, 0·83; weight, 0·25 oz. Irides dark brown; legs dusky; soles of feet greenish; bill above horny, below dusky yellow.

13*th January.*—Length, 4·59; expanse, 6·25; wing, 2·33; tail from vent, 1·91; tarsus, 0·75; bill from gape, 0·50; at front, 0·32; closed wings fall short of end of tail, 0·81.

At the back of my factory was a long avenue of babool trees, which afforded a favorite haunt for this species. They are far from rare, but are only cold weather visitants.

591*bis*.—Motacilla dukhunensis, *Sykes.*

19*th March* 1878, *Female.*—Length, 7·90; expanse, 10·50; wing, 3·50; tail from vent, 3·75; tarsus, 1·0; bill from gape, 0·66; at front, 0·50; closed wings fall short of end of tail, 2·0; weight, 0·85 oz. Bill and legs black.

27*th March*, *Male.*—Length, 8·25; expanse, 11·25; wing, 3·58; tail from vent, 4·0; tarsus, 1·0; bill from gape, 0·70; at front, 0·42; closed wings fall short of end of tail, 2·58; weight 0·9 oz.

Common during the cold weather. Very fearless, feeding about houses and road sides.

593*ter*.—Budytes cinereocapilla, *Savi.*

4*th April* 1878, *Male.*—Length, 6·50; expanse, 8·75; wing, 2·92; tail from vent, 2·75; tarsus, 0·92; bill from gape, 0·60; at front, 0·42; closed wings fall short of end of tail, 1·66; weight, 0·62 oz. Legs black; irides dark brown; bill, base, below pale, rest black.

Common during the cold weather when it is found in open fields, especially when there is rank "doob" grass; numbers are also to be seen hovering round cattle which are grazing, busily capturing the insects that are put up.

593*quat.*—Budytes flava, *Lin.*

4th February 1878, *Female.*—Length, 6·66; expanse, 9·50; wing, 3·0; tail from vent, 2·80; tarsus, 0·90; bill from gape, 0·62; at front, 0·45; closed wings fall short of end of tail, 1·75. Bill and legs black.

19th March, *Female.*—Length, 6·66; expanse, 8·50; wing, 2·92; tail from vent, 2·75; tarsus, 0·92; bill from gape, 0·64; at front, 0·44; closed wings fall short of end of tail, 1·50; weight, 0·62 oz.

4th April 1878, *Female.*—Length, 7·50; expanse, 9·0; wing, 3·0; tail from vent, 2·83; tarsus, 0·92; bill from gape, 0·60; at front, 0·44; closed wings fall short of end of tail, 1·66; weight, 0·62 oz. Legs black; basal portion of lower mandible bluish; rest of bill black; irides dark brown.

Common in the cold weather. Very partial to paddy fields that are damp, where it associates with the next species.

594*bis*—Budytes citreola, *Pallas.*

23rd January 1878.—Length, 7·25; expanse, 9·50; wing, 3·33; tail from vent, 3·33; tarsus, 1·0; bill from gape, 0·71; at front, 0·50; closed wings fall short of end of tail, 2·25.

22nd March, *Female.*—Length, 7·08; expanse, 10·0; wing, 3·16; tail from vent, 3·16; tarsus, 0·90; bill from gape, 0·70; at front, 0·56; closed wings fall short of end of tail, 2·0; weight, 0·62 oz.

8th April, *Male.*—Length, 7·58; expanse, 10·25; wing, 3·33; tail from vent, 3·50; tarsus, 1·0; bill from gape, 0·70; at front, 0·50; closed wings fall short of end of tail, 2·0; weight, 0·75 oz.

Very common during the cold weather, frequenting open plains and cultivated fields.

596.—Anthus maculatus, *Hodgs.*

18th March 1878, *Male.*—Length, 6·58; expanse, 9·50; wing, 3·25; tail from vent, 2·75; tarsus, 0·80; bill from gape, 0·64; at front, 0·42; closed wings fall short of end of tail, 1·58; weight, 0·87 oz.

13th April, *Female.*—Length, 6·58; expanse, 10·10; wing, 3·16; tail from vent, 2·58; tarsus, 0·80; bill from gape, 0·60; at front, 0·42; closed wings fall short of end of tail, 1·50; weight, 0·87oz. Legs fleshy; bill, above horny, below fleshy.

Very common in the cold weather. Frequents shady places, where it feeds on the ground on insects, &c. At the sign of any one approaching they fly up into the trees; they keep together

in small parties. The last bird I saw this season was on the 21st April.

597.—Anthus trivialis, *Lin.*

1*st March* 1878, *Female.*—Length, 6·20; expanse, 10·25; wing, 3·16; tail, 2·45; tarsus, 0·82; bill from gape, 0·58; weight, 0·75 oz.

I did not distinguish this species from the last.

599.—Corydalla richardi, *Vieill.*

6*th February* 1878, *Male.*—Length, 7·75; expanse, 12·25; wing, 3·66; tail from vent, 3·10; tarsus, 1·16; bill from gape, 0·83; at front, 0·56; closed wings fall short of end of tail, 2·0; hind claw, 0·62.

4*th March, Female.*—Length, 8·16; expanse, 12·0; wing, 3·50; tail from vent, 3·08; tarsus, 1·16; bill from gape, 0·86; at front, 0·56; closed wings fall short of end of tail, 2·0; hind claw, 0·70; weight, 1 oz.

4*th March, Female.*—Length, 8·0; expanse, 12·20; wing, 3·75; tail from vent, 3·0; tarsus, 1·25; bill from gape, 0·82; at front, 0·52; closed wings fall short of end of tail, 1·83; hind claw, 0·83; weight, 1·12 oz.

26*th April, Male.*—Length, 8·0; expanse, 11·50; wing, 3·75; tail from vent, 3·25; tarsus, 1·16; bill from gape, 0·76; at front, 0·55; closed wings fall short of end of tail, 1·92; weight, 1·12 oz. Irides brown; legs fleshy yellow; bill dusky; base of lower mandible yellowish; mouth, inside yellowish.

Common in the cold weather, frequenting fields of peas, linseed, &c. Rather shy. I have not noticed them associating in small flocks at the end of the cold weather as stated by Davison in S. F., Vol. VI., p. 365.

600.—Corydalla rufula, *Vieillot.*

4*th March* 1878, *Male.*—Length, 6·42; wing, 3·08; tail from vent, 2·33; tarsus, 1·0; bill from gape, 0·68; at front, 0·50; closed wings fall short of end of tail, 1·33; hind claw, 0·42; weight, 0·75oz. Legs dusky yellow; joints darker; bill above dusky, below yellowish.

Common, and a permanent resident. Found in high cultivated fields and paddy fields. Breeds during April and May under tufts of grass, on the sides of embankments, &c. The nest is made of fine grasses, cup shaped; very often a hollow is taken advantage of, and this the bird fills neatly with grass. Some birds breed even in June.

660.—*Corvus macrorhynchus, *Wagler.*

Common, and a permanent resident. Occasionally found in the clumps of jungle that are found about the country, which the next species never affects. Breeds in the cold weather. I had noticed a pair building on a *Casuarina* tree in my garden, about 50 feet off the ground, and on the 18th December 1877 I took two perfectly fresh eggs from it; and again on the 9th January 1878 I found two callow young in this same nest, the birds never having deserted it. The lining used for this nest was principally jute fibre—any tree is selected to build on—the nests are placed from 15 to 50 feet off the ground. Some nests are very well concealed, whereas others are quite exposed. On the 15th January I found a nest about 15 feet up a small Kudum tree, standing in a large plain, and which had a lining of hair from the tail tufts of cows. There was one fresh egg, and a week later I got another fresh egg from this very nest. From two to four eggs are in each nest.

663.—* Corvus splendens, *Vieill.*

Very common, and a permanent resident, affecting the haunts of man. They build and lay in May. The Koel lays its eggs in this bird's nest. In April 1876 I saw two nests, in the compound of the house in which I live at Howrah, which were made *entirely* of galvanised wire,* the thickest piece of which was as thick as a slate pencil. How the birds managed to bend these thick pieces of wire was a marvel to us; not a stick was incorporated with the wires, and the lining of the nest (which was of the ordinary size) was jute and a few feathers. The Railway goods yard, which was alongside the house, supplied the wire, of which there was ever so much lying about there.

674.—Dendrocitta rufa, *Lath.*

23*rd May* 1878, *Female.*—Length, 16·0; expanse, 18·25; wing, 5·66; tail from vent, 8·75; tarsus, 1·16; bill from gape, 1·20; at front, 1·08; closed wings fall short of end of tail, 7·0; weight, 3·75 ozs. Irides bright chocolate; legs horny in front, plumbeous behind; claws horny; orbits livid; bill, base, and gape light plumbeous; rest, dark horny; mouth, inside bluish black; ovaries minute.

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* Many years ago Blyth had a crow's nest sent him, which was composed *entirely* of *fine* wire that had been used for wiring soda water bottles, but these nests composed of comparatively *thick* wire, some of it about 5 or 6 guage, and some of the pieces so heavy you would hardly think a crow could fly off with them, are far more wonderful.—Ed., S. F.

30th May, Male.—Length, 16·0; expanse, 18·50; wing, 5·75; tail from vent, 9·33; tarsus, 1·25; bill from gape, 1·30; at front, 1·20; closed wings fall short of end of tail, 7·33; weight, 4·25 ozs. Irides rich red brown; legs horny; soles greenish yellow; bill bluish black, paler at gape; mouth, inside bluish black; claws horny.

Common, and a permanent resident. It hunts about trees, bushes, and standing crops of jute and sugarcane, even entering gardens in search of its food, and I have seen it frequently enter a bungalow verandah, and from the chinks in the mat walls take away bats, which they devour greedily. I have never seen it eat fruit. In June I came across a nest in course of construction; it was high up on the topmost branches of a mangoe tree, one of a clump, but it was eventually deserted.

683.—Sturnopastor contra, *Lin.*

25th May 1878, *Male.*—Length, 9·25; expanse, 15·50; wing, 4·75; tail from vent, 3·0; tarsus, 1·16; bill from gape, 1·50, at front, 1·12; closed wings fall short of end of tail, 1·17; weight, 3·12 ozs. Orbits bright orange; bill at base fine red; terminal half yellowish white; legs dull ivory white.

8th June, Male.—Length, 9·08; expanse, 15·0; wing, 4·60; tail from vent, 3; tarsus, 1·25; bill from gape, 1·50; at front, 1·12; closed wings fall short of end of tail, 1·75; weight, 3 ozs. Irides yellowish white; orbital skin orange; legs yellowish white; claws light horny; bill, basal half deep orange, rest white; mouth, inside black.

Very common, and a permanent resident. They eat fruit as well as insects. Lay in May and June, building their huge nests at various heights from the ground, and in any tree that comes handy. I have often found the nests lined with the white feathers of the paddy birds; some of the feathers being as much as six and seven inches in length. The nests were composed principally of "doob" grass; three to four eggs in each nest.

684.—*Acridotheres tristis, *Lin.*

Very common, and a permanent resident. Never found away from the villages. Builds in holes of trees and buildings. Laying four to five bluish eggs; lay from May to July. If the first clutch of eggs are taken away, they lay again. In my verandah a pair had reared a young one, and on three occasions I saw one of the parent birds bring small frogs, about 2½ inches extreme length, to feed the young one. The parent bird would fly in and out several times with the frogs, and when convinced that they

were too big for the young one to swallow, it would dash them about on the masonry floor until the limbs were severed, when the birds would be fed piece by piece. It is astonishing what numbers of grasshoppers and caterpillars a young Mynah can swallow in a day. I have known this species to use bits of snake skin for the lining of its nest.

685.—Acridotheres ginginianus, *Lath.*

Males.—Length, 9·9 and 9·25; expanse, 15·0 and 15·75; wing, 4·66 and 4·75; tail from vent, 2·80 and 2·83; tarsus, 1·33 and 1·42; bill from gape, 1·30; at front, 0·75; closed wings fall short of end of tail, 1·33 and 1·50; weight, 2·87 ozs. Legs dull orange; feet and claws dull yellow; irides red; naked skin round eye dull red; mouth, inside fleshy; bill orange; tip pale.

Females.—Expanse, 14·60 and 15·0; wing, 4·54 and 4·60; tail from vent, 2·33 and 2·42; tarsus, 1·20 and 1·37; bill from gape, 1·16 to 1·20; at front 0·72 and 0·75; closed wings fall short of end of tail, 1·16 and 1·25; weight, 2·75 to 2·87 ozs. Bill, &c., same as in the male.

Excessively common. The majority leave the district during the cold weather. They feed in flocks, often accompanying grazing cattle, capturing the insects that are disturbed by the herd pushing through the grass. Breeds in the high perpendicular banks of rivers in colonies. The tunnel is from two to four feet in depth, and terminates in a small chamber which occasionally has an apology of a lining of feathers and bits of snake skins. The tunnels sometimes lead into one another. From two to five eggs are found in each nest.

686.—Acridotheres fuscus, *Wagl.*

Males.—Length, 9·58 and 10; expanse, 14·50 and 15·25; wing, 4·66 and 4·75; tail from vent, 3· and 3·08; tarsus, 1·42 and 1·45; bill from gape, 1·25; at front, 0·58 and 0·86; closed wings fall short of end of tail, 2·87 and 3·25. Irides yellow; legs orange; bill yellow and orange; mouth, inside inky black.

Female.—Length, 9·83; expanse, 14·10; wing, 4·58; tail from vent, 2·75; tarsus, 1·36; bill from gape, 1·30; at front 0·83; closed wings fall short of end of tail, 1·53. Bill, &c., same as in the male.

Pretty common, and a permanent resident. This species associates with *A. tristis*, but is seen on trees well away from villages which the latter rarely is. Prefers well-wooded country. On the 29th June 1877 I found a nest in a hole of a "Bukain" (*Melia sempervirens*) tree, about 12 feet off the ground. The diameter of the entrance hole was two and a half inches, and inside it widened

to six inches in breadth and about twenty inches in depth. The nest was a mere pad of grass and feathers, on which rested four very slightly incubated eggs. Later on the 17th July, seeing the hole still occupied, I again sent up a boy who found four more fresh eggs in it. The tree formed one of an avenue, leading from the house to the vats, and as men were always going along the road, it rather surprised me to find these birds laying there. The hole had been caused by the heart of the tree rotting.

688.—*Temenuchus malabaricus, *Gmel.*

Very common from the end of April to October, after which a few birds may be seen at times. I cannot call to mind ever having seen these birds descend to the ground. They must breed here, though I failed to find a nest. In front of my verandah was a large "*Poinciana regia*" tree, in the trunk of which, and at about seven feet from the ground, was an old nest hole of *Xantholæma*, which a pair of these birds widened out. During all May and June I watched these birds pecking away at the rotten wood and throwing the bits out. They generally used to engage in this work during the heat of the day; and, although I several times searched the hole, no eggs were found, the pair were not pecking at the decayed wood for insects, for I watched them through a glass; had I remained another month at the factory most likely they would have laid during that time; it was on this account their lives were spared. This species associates with its congeners on the Peepul trees when they are in fruit, which latter they eat greedily.

694.—*Ploceus baya, *Blyth.*

Excessively common, and a permanent resident, very destructive to the paddy crops when in the ear. In the cold weather the males drop the yellow crown. Builds in all kinds of trees and at various heights from the ground. It breeds from May to August. I have, on several occasions, found a second nest commenced from the bottom of the tube of an old one, the upper nest being useless as the passage is closed up. They lay from two to five eggs, and very often only a single young one is found. I unfortunately preserved no specimens, and this may have been *P. philippinus*. I did not then understand the differences between the two species which have now been made clear by the Editor. (*vide* S. F., VI., 398.)

695.—Ploceus manyar, *Horsfield.*

Very common. I cannot say whether this species is a permanent resident or not. At the commencement of May I

have first noticed the Black-breasted Weaver Bird, and this species, frequenting the grassy churs of the district. At the beginning of July these birds commence to build their nests in small colonies, on the long grass clumps and bushes wherever these are standing in water. The nest is quite distinct from that of *P. baya* for which it can never be mistaken. It is a shorter thicker nest than that of *baya*, built of the same materials and generally with only an apology of a tube. The eggs are laid in July and August, and are from two to five in each nest.

696.—Ploceus bengalensis, *Lin.*

18*th June* 1878.—Shot the pair and took the nest with one fresh egg, all of which I sent to the Editor, S. F., for identification. From the oviduct of the female another fully formed, but soft, egg was taken. In front of my house was a small river, which, at this time of the year, had several deep pools at intervals along the bed. The public road ran parallel with the river, the bank of which in one place was about 15 feet high and overlooking one of these pools of water. This sloping bank was covered with brushwood jungle about four feet high, and in one of the bushes this nest was placed. Several twigs had been bent down and incorporated with the roof of the nest, which had no lining. It was about three feet off the ground. The female flew off the nest and was shot, and the male on coming back from feeding was also shot while sitting on the nest. I failed to find any more of their nests; the one found was the only nest in that clump; no *P. baya* ever was near the place.

698.—*Munia rubronigra, *Hodgs.*

699.—*Munia punctulata, *Lin.*

No where common, but during the rainy season a few pairs of both species are seen about the hedgerows and cultivated fields; they breed here, as I have on several occasions seen their nests in mangoe trees and bushes, in June to August; they lay from five to seven eggs in each nest; they go about in pairs, and are very fearless, entering even gardens.

703.—Munia malabarica, *Lin.*

24*th April* 1878, *Male*.—Length, 4·83; expanse, 6·58; wing, 2·10; tail from vent, 1·92; tarsus, 0·56; bill from gape, 0·42; at front, 0·39; closed wings fall short of end of tail, 1·42; weight 0·66 oz. Bill plumbeous; legs livid carneous.

Common, and a permanent resident; goes about in small parties of from five to fifteen in number; frequents the same

places as the two last species. This species is often seen feeding on the road like *Passer*. Builds a large globular nest, sometimes high up in a Mangoe tree, and at others on low thorny bushes; they lay six and seven eggs during July and August.

704.—*Estrilda amandava, *Lin.*

On the 19th April 1878 I came across a small party of this species, in which there were only four birds in the adult male plumage, the rest (eight birds) being brownish. I shot one and tried to carbolize it, but failed; these birds were flying from clump to clump of Sun grass that grew on the divisions of some fields of rapeseed. I never again noticed the species.

706.—Passer indicus, *Jard. and Selb.*

Excessively common, and as great a nuisance as it is in other parts of the country; every village affords shelter to scores of them. From February to June are the months during which they breed.

754.—Mirafra assamica, *McClell.*

21*st March* 1878, *Nestling Male.*—Length, 5·50; expanse, 7·50; wing, 2·16; tail from vent, 0·66; tarsus, 0·92; bill from gape, 0·58; bill at front, 0·33; closed wings fall short of end of tail, 0·37; weight, 0·5 oz. Irides brown; legs fleshy; bill fleshy; tip dusky. Nestling which had evidently just left the nest; there were two, which I found trying to sneak away through the doob grass on a chur, while I was out shooting one day.

23*rd March* 1878, *Female.*—Length, 6·50; expanse, 9·50; wing, 2·92; tail from vent, 1·77; tarsus, 0·92; bill from gape, 0·66; bill at front, 0·53; closed wings fall short of end of tail, 1·16; weight, 1 oz. Legs fleshy brown; irides hazel brown; bill, above horny, below whitish. Shot off nest with eggs.

Very common and a permanent resident; found in open plains and cultivated fields, and also on the public roads. I have repeatedly found their eggs. On the 23rd March the female above mentioned flew past me with a straw in her bill and settled in the dry bed of a tank. On my going up to the spot she flew off the nest and was shot. The nest, the lower half of which rested in a small hollow, was a domed structure of "Sun" and "Doob" grass roots with a lining of very fine roots of those grasses; there were also some lumps of matted fur like that of the rat in the nest; the entrance was at the side; there were two fresh eggs; the whole thing was very artfully

concealed. I found another nest in an indigo field, which was partially overhung by a tuft of grass, but which was only a pad of grass roots and contained four fresh eggs. I shot the female as she flew off. This was on the 22nd June—the breeding time is from the beginning of March to the 15th July. These birds are a favorite quarry of the Turumtee *(F. chiquera)*?

760.—Pyrrhulauda grisea, *Scop.*

26th April 1878, *Female.*—Length, 4·89; expanse, 8·75; wing, 2·93; tail from vent, 1·66; tarsus, 0·66; bill from gape, 0·48; at front, 0·42; closed wings fall short of end of tail, 0·58; weight, 0·62 oz. Legs fleshy; irides dark brown; bill fleshy, tinged dusky. Shot off nest, with eggs.

Pretty common. I have not noticed it from November to February, and am of opinion that it leaves the district during those months; its habits, &c., are well described by Jerdon. I once found its nest in the dry bed of the river that was in front of my house; it was on the 26th April 1878; the nest was a tiny cup-shaped affair of fine grass roots which were firmly held together by damp sand, so much so that on taking it up it appeared like a ball cut in two; it contained two fresh eggs; there was not even a small tuft of grass anywhere near where the nest was; only some tamarisk shoots above and shading it. The sand was the fine grey sand one finds in such places. The ground was always damp where the nest was, and this latter was so placed that I do not think the sun could ever reach it. I fancy the sand had blown in amongst the grass roots. I had the nest for a long time, but it gradually dried and all the sand fell out of it.

762.—Alaudula raytal, *Blyth.*

24th March 1878, *Male.*—Length, 5·66; expanse, 9·50; wing, 3·25; tail from vent, 2·10; tarsus, 0·75; bill from gape, 0·66; at front, 0·50; closed wings fall short of end of tail, 0·66; weight, 0·62 oz. Bill, horny above, bluish white beneath; legs fleshy; irides brown.

Common on the large sandy churs of all the big rivers; how the bird exists in summer on the bare white sand during the heat of the day is a wonder. I found a nest on a chur on the 9th April. The rain water trickling over a low bank had formed a small hollow, which was overhung by a ledge of earth; in this hollow was a nest composed of fine grasses with a few feathers stuck about it; the nest was a deep cup and measured externally three inches in diameter, and two inches deep; inside two inches broad, and one inch deep; there were two fresh eggs. I came back

the next day and found another egg had been laid. I brought the nest, &c., away for fear of the eggs being eaten by any bird, so am unable to say if they lay more than that number of eggs.

772.—Crocopus phœnicopterus, *Lath.*

Males.—Length, 13·25 to 13·75; expanse, 21·25 to 23·0; wing, 7·0 to 7·33; tail from vent, 4·92 to 5·0; tarsus, 1·0 to 1·08; bill from gape, 1·08 to 0·94; at front, 0·80 to 0·75; closed wings fall short of end of tail, 1·75 to 2·50; weight, 9 to 10 ozs. Legs orange yellow; bill whitish; cere greenish.

Females.—Length, 12· to 13·16; expanse, 21· to 22·62; wing, 6·75 to 7·25; tail from vent, 4·25 to 4·83; tarsus, 1· to 1·08; bill from gape, 0·92 to 1·0; at front, 0·71 to 0·75; closed wings fall short of end of tail, 1·60 to 2·0; weight, 7 to 9 ozs. Legs yellow; bill whitish; cere greenish.

Common, and a permanent resident; they breed in June, but I failed to find the nest. This species is strictly frugivorous; the natives say that whenever this bird descends to the water's edge for a drink it holds a twig in its claws; it prides itself on living altogether on trees, and in order that it may not be accused of perching on the ground when it descends to drink, it brings down with it a twig to stand upon!

788.—Columba intermedia, *Strickl.*

Very common indeed; all over the district the ruins of indigo factories are scattered about, and these and the temples afford roosting places for these birds; they build in these ruins principally in May and June. On several occasions I have noticed them alight on trees and bamboos. The natives of these parts do not venerate this bird as they do in the North-West.

788 *bis.*—Columba livia, *Bonap.*

25th January 1878, *Male.*—Length, 13·75; expanse, 25·0; wing, 8·70; tail, 5·0; tarsus, 1·0; bill from gape, 1·0; closed wings equal end of tail. Legs light pink; claws black; bill black; irides brick red with an inner circle of yellowish white; eyelids light bluish.

I have seen about half a dozen birds of this species during my stay in the district; they were single individuals in amongst flocks of *intermedia.*

793.—*Turtur meena, *Sykes.*

On the 3rd of August 1877, I saw three birds fly past me which I identified as this species; having seen numbers in Sylhet I

know the bird well; there is no other kind of Dove except *T. rupicola* for which I could mistake it; its great size prevents a person confounding *T. suratensis* with it. I never again saw any in Furreedpore.

795.—*Turtur suratensis, *Gmel.*

Excessively common, and a permanent resident. In several instances I have found its nests well concealed in cane brakes and bushes; the majority of nests, however, are well exposed to view on bushes, bamboo clumps and small trees, and never at any great height from the ground. It is a wonder how they ever rear any young ones, considering how low and exposed the nests generally are. From November to May seems to be the favorite time here for laying; never more than two eggs in a nest, nor have I seen a nest used for a second clutch.

796.—Turtur risoria, *Lin.*

28*th May* 1878, *Female.*—Length, 12·25; expanse, 19·75; wing, 6·25; tail from vent, 5·16; tarsus, 1·0; bill from gape, 0·85; at front, 0·65; closed wings fall short of end of tail, 2·50; weight, 6·25 oz. Irides blood red; legs dull lake; bill black; orbital skin bluish white; gape bluish.

14*th May*, *Male.*—Length, 12·33; expanse, 20·0; wing, 6·50; tail from vent, 5·50; tarsus, 0·85; bill from gape, 0·83; at front, 0·58; closed wings fall short of end of tail, 2·25; weight, 6·12 ozs. Legs livid purple; bill blackish; irides reddish.

Excessively common and a permanent resident. The birds of the year have the back of a deep vinous grey. This species breeds from December to July in small bushes and trees at from 6 to 12 feet from the ground in very exposed situations; the nest is a mere apology of twigs, and never contains more than two eggs; when the crops are being sown here this species congregates in small flocks of 10 to 30. I once shot one of these birds while it was flying past amongst a flock of "Blue Rock" Pigeons.

797.—Turtur tranquebarica, *Herm.*

8*th May* 1878, *Male.*—Length, 9·42; expanse, 16·0; wing, 5·25; tail from vent, 3·42; tarsus, 0·80; bill from gape, 0·81; at front, 0·58; closed wings fall short of end of tail, 1·16; weight, 3·5 ozs. Legs horny black; bill black; irides brown.

Far from common; frequents woods more than either of the other two preceding species. I have seen them all the year round, but only in pairs. On the 10th June 1878 I saw a nest

in course of construction; it was built in the centre of a clump of bamboos near a ryot's house and about 10 feet off the ground; the birds deserted it eventually.

798.—*Chalcophaps indica, *Lin.*

Rare; for during the year I only saw four pairs. I shot one on the 17th July 1878, from off a bamboo clump, but it was too cut up to be skinned; frequents shady places in dense clumps of trees and bamboos. I have often mistaken the note of this bird for that of the Malkoha.

829.—Coturnix communis, *Bonn.*

Males.—Expanse, 13·50 to 14·0; wing, 4·10 to 4·16; tail, 1·58 to 1·91; tarsus, 1·0 to 1·08; bill from gape, 0·58 to 0·66; closed wings fall short of end of tail, 0·92 to 0·50; weight, 3·62 to 3·87 ozs.

Females.—Expanse, 13· to 14; wing, 4·08 to 4·33; tail, 1·58 to 1·74; tarsus, 0·92 to 1·08; bill from gape, 0·61 to 0·65; closed wings fall short of end of tail, 0·42 to 0·90; weight, 3·62 to 4·62 ozs.

Common in the cold weather, when they are to be found singly, in pairs, and small coveys in fields of indigo, rapeseed, and such like crops. Just before sunrise very nice shooting can be had by walking along the small "bunds" of these fields, as the birds at that time lie along the sides of these, and it is not till about an hour after sunrise that they disperse amongst the standing crops to feed.

830.—Coturnix coromandelica, *Gmel.*

12*th March* 1878, *Female.*—Expanse, 10·83; wing, 3·60; tail from vent, 1·42; tarsus, 0·92; bill from gape, 0·58; at front, 0·46; closed wings fall short of end of tail, 0·50; weight, 2·37 ozs.

Pretty common; it affects the same situations as the last, and being so very like the Grey Quail is often overlooked.

835.—*Turnix dussumieri, *Tem.*

Common, but from its retiring habits difficult to procure. One of my syces when cutting grass in an indigo field, caught an adult bird, and to prevent its flying away the idiot pulled off *every* feather from the wings, and when I got the bird the bare skin was only left on the wings. When feeding it one day my servant let it go. When going through "Sun" grass fields this bird is often flushed.

843.—*Glareola lactea, *Temm.*

This species is rather common; frequents the large sandy churs along the course of the main rivers, though I have shot them at dusk hawking insects from a "beel." On going over my collection of birds I find that no specimens have been preserved.

845.—Charadrius fulvus, *Gmel.*

2nd March 1878, *Female.*—Expanse, 20·75; wing, 6·20; tail, 2·42; tarsus, 1·58; bill from gape, 1·08; at front, 0·91; closed wings exceed end of tail, 0·25; weight, 3·87 ozs.

9th May, *Male.*—Expanse, 20·25; wing, 6·30; tail, 2·0; tarsus, 1·66; bill from gape, 1·08; at front, 0·92; closed wings exceed end of tail, 0·33; weight, 4·87 ozs. Bill black; legs leaden; irides brown. This specimen is in full breeding plumage.

Very common during the cold weather, keeping to open plains and ploughed fields in small parties. The first bird of the season I noticed on the 16th August 1877, and the last were observed on the 10th May 1878. During April, and until they leave the country, they congregate in large flocks, which are continually moving about all day.

847.—Ægialitis mongola, *Pall.*

17th January 1878, *Female.*—Length, 8·42; expanse, 15·40; wing, 4·73; tail from vent, 2·0; tarsus, 1·25; bill from gape, 0·83; at front, 0·75; closed wings exceed end of tail, 0·25.

The above bird was one of several that I knocked over from a flock one morning on a chur of the Muddoomutee River; along with these was an unfortunate *Tringa minuta.* I never again saw this Sand Plover.

849.—Ægialitis dubia, *Scop.*

19th March 1878, *Male.*—Length, 6·75; expanse, 13·75; wing, 4·25; tail from vent, 2·25; tarsus, 0·91; bill from gape, 0·60; at front, 0·50; closed wings fall short of end of tail, 0·42; weight, 1·12 oz. Bill black; legs dusky yellow; irides brown; orbital skin yellow.

4th April 1878, *Female.*—Length, 7·25; expanse, 14·75; wing, 4·58; tail from vent, 2·50; tarsus, 0·92; bill from gape, 0·58; at front, 0·54; closed wings fall short of end of tail, 0·16; weight, 1·37 oz. Irides dark brown; bill black; base beneath yellowish; legs dusky yellow; orbits yellow.

Rather common and a permanent resident, as I have seen them all the year round, though failed to find the eggs; they go about in small parties of five and six along the banks and churs of rivers.

850.—Ægialitis minuta, *Pall. apud Jerd.*

14*th May* 1878, *Male.*—Length, 6·75; expanse, 12·25; wing, 4·08; tail from vent, 2·10; tarsus, 0·92; bill from gape, 0·56; at front, 0·46; closed wings fall short of end of tail, 0·12; weight, 0·87 oz. Eyelids yellow; legs bluish grey; irides dark brown; bill, base below and gape yellow.*

I came across a party of four on a sandy chur, and only secured one; the testes were enlarged, from which I conclude it breeds here. I never again met with this species.

854.—Chettusia cinerea, *Blyth.*

4*th February* 1878, *Female.*—Length, 15·0; expanse, 30·75; wing, 9·58; tail from vent, 4·20; tarsus, 30·5; bill from gape, 1·66; at front, 1·50; closed wings equal end of tail. Legs and feet, greenish yellow; claws black; bill, basal two-thirds greenish yellow, rest black; wattles greenish yellow; irides pinkish red.

Found in small flocks which are shy and silent; they frequent the beds of jheels whenever these are dry and covered with "doob" grass, especially if water is near. By the end of April all have left the country.

855.—Lobivanellus indicus, *Bodd.*

18*th May* 1878, *Female.*—Expanse, 28·12; wing, 8·75; tail, 4·66; tarsus, 3·25; bill from gape, 1·50; at front, 1·42; closed wings fall short of end of tail, 0·20; weight, 6·5 ozs. Legs dull yellow; irides reddish brown; eyelids and wattles, rich lake red; bill, basal two-thirds lake red, rest black.

Common and a permanent resident; frequents open plains and cultivated fields as well as the banks of rivers.

857.—Hoplopterus ventralis, *Cab.*

21*st May* 1878, *Male.*—Expanse, 25·0; wing, 7·60; tail from vent, 3·60; tarsus, 2·42; bill from gape, 1·30; at front, 1·08; closed wings exceed end of tail, 0·15; weight, 5·62 ozs.

* Please note the difference in the size of this and the male in *dubia*; note that it was a breeding and not a young bird; note finally the differences in the colours of the soft parts. It is impossible with the fresh birds in hand not to recognize the two species; but the females of *minuta* are about the size of the males of *dubia*, and hence the confusion in the case of skins in which the distinction in the coloration of the soft parts is lost, or nearly so.—Ed., S. F.

Irides deep brown; bill and legs black, also the mouth inside.

Pretty common and a permanent resident in this district; they frequent the sandy churs of the large rivers: in Sylhet I have seen them on the "Soormah" river which has a muddy bottom, and in the Western Dooars numbers are observed on the pebbly bottoms of the numerous hill streams which enter the district from the north, so that they are not so particular as to the places they frequent, but they never leave the proximity of running water. I tried hard to find the eggs, but failed.

858.—Esacus recurvirostris, *Cuv.*

4th February 1878, *Male.*—Length, 20·; expanse, 35·0; wing, 10·25; tail from vent, 4·50; tarsus, 3·42; bill from gape, 3·50; at front, 2·80; closed wings fall short of end of tail, 1·25.

Rather rare; a pair or two seen at long intervals along the sandy churs of the big rivers; has a low soft whistle; a very wary bird. The bill in the above mentioned specimen had the base of both mandibles greenish yellow for 0·75; the rest black; tarsus greenish, the front of the latter and upper surface of toes being dusky; irides greenish; orbital skin yellow. This and the last species call frequently during the night, especially if it is moon light.

870.—Gallinago sthenura, *Kuhl.*

4th February 1878, *Male.*—Expanse, 17·08; wing, 5·08; tail, 2·33; tarsus, 1·25; bill from gape, 2·12; at front, 2·25; closed wings fall short of end of tail, 0·16.

Females.—Expanse, 17·62 to 18·0; wing, 5·08; tail, 2·25 to 2·42; tarsus, 1·33; bill from gape, 2·50 to 2·54; at front, 2·50 to 2·64; closed wings fall short of end of tail, 0·66 to 0·75; weight, 4·25 to 4·37 ozs. Legs greenish; upper bill, basal half horny; distal half blackish brown; lower bill, basal half dusky green; rest blackish brown.

A cold weather visitant; arriving later than the next species; common; it is frequently found in dry places, such as dry paddy fields, drains and the like, which *gallinaria* never is; one that I shot on the borders of a mustard field in the factory compound had about a dozen caterpillars, from 0·5 to 1·25 inch long, in its gizzard; this bird was very dark colored on its lower parts. I shot a female, the last of the season, on the 24th April 1878; she was flushed from a perfectly dry ditch at the back of my house.

871.—Gallinago gallinaria, *Gm.*

Very common in suitable localities; for the first half of the season, October to December, they are a good deal scattered about and are found in standing paddy, marshes and such like places, but from January they are only to be found in "beels" and marshy hollows, if these have grass growing over them; by the end of March very few birds are to be seen. I subjoin measurements of eleven males and three females shot in March 1878:—

Males.—Length, 9·0 to 10·0; expanse, 15·0 to 17·50; wing, 4·91 to 5·60; tail, 2·50 to 2·75; tarsus, 1·19 to 1·33; bill from gape, 2·29 to 2·66; at front, 2·29? to 2·75; weight, 3·75 to 5·12 ozs.

Females.—Length, 9· to 10·; expanse, 16·0 to 17·50; wing, 4·85 to 5·25; tail, 2·30 to 2·50; tarsus, 1·25 to 1·33; bill from gape, 2·61 to 2·67; at front, 2·60 to 2·75; weight, 3·5 to 5 ozs.

872.—Gallinago gallinula, *Lin.*

1*st March* 1878, *Female.*—Length, 9·65; expanse, 13·20; wing, 4·08; tail from vent, 1·75; tarsus, 0·92; bill from gape, 1·62; at front, 1·62; closed wings fall short of end of tail, 0·42; weight, 2·12 oz.

A few couple seen during the season; they frequent the same ground as the last species.

873.—Rhynchæa bengalensis, *Lin.*

26*th January* 1878, *Male.*—Expanse, 17·0; wing, 5·0; tail 1·50; tarsus, 1·70; bill from gape, 1·83; at front, 1·83; closed wings fall short of end of tail, 0·75.

15*th June* 1878, *Female.*—Expanse, 18·0; wing, 5·16; tail, 1·50; tarsus, 1·83; bill from gape, 2·06; at front, 2·0; closed wings fall short of end of tail, 0·75; weight, 5·25 ozs. Irides greenish brown; bill, basal third, greenish blue; rest pinkish; legs greenish blue.

Not rare; a few couple are seen during the year; frequents, by preference, swampy ground covered with patches of brush-wood. I think they are permanent residents; they never utter a sound when flushed.

875.—Limosa ægocephala, *Lin.*

March 1878. *Males*.*—Expanse, 25·0 to 27·50; wing, 7·75 to 7·92; tail, 3·25; tarsus, 2·75 to 3·08; bill from gape, 3·75 to

* I think there may have been some mistake in the sexing of these specimens. I have always found a much greater and more constant difference in the size of the two sexes, the females being always much larger and with much longer bills.—Ed.

4·0; at front, 3·60 to 4·0; closed wings fall short of end of tail, 0·42 to 1·0; weight, 10·12 to 10·5 ozs. Irides dark brown; legs blackish; bill basal half, reddish; rest dusky brown.

March 1878, *Females.*—Expanse, 25·50 to 27·0; wing, 7·50 to 7·83; tail, 3·0 to 3·25; tarsus, 2·75 to 3·08; bill from gape, 3·40 to 4·39; at front, 3·25 to 4·42; closed wings fall short of end of tail, 0·37 to 1·25; weight, 8·62 to 12·12 ozs.

To the south of my factory was a large expanse of paddy field, in the centre of which was a sheet of water of about 20 acres in extent; in the hot weather the water was reduced to about 18 inches in depth, and this place for the latter half of March used to swarm with these birds. From about 9 to 2 in the day, the whole of the birds used to go away somewhere, evidently to feed. They used to allow me to approach within gunshot, and on the report of a gun would fly to the other end of the "beel," when they could not be so easily shot. By the beginning of April not a bird was to be seen.

885.—Actodromas temminckii, *Leisl.*

Males.—Length, 6· to 6·25; expanse, 11·25 to 11·50; wing, 3·58 to 3·62; tail, 1·83 to 2·0; tarsus, 0·60 to 0·66; bill from gape, 0·66 to 0·68; at front, 0·66 to 0·68; closed wings fall short of end of tail, 0·16 to 0·86; weight, 0·87 to 1·12 oz. Legs greenish; bill base greenish; rest black.

Females.—Length, 6·10 to 6·30; expanse, 11·50; wing, 3·66 to 3·83; tail, 2·0 to 2·25; tarsus, 0·66; bill from gape, 0·66 to 0·70; at front, 0·64 to 0·66; weight, 0·62 oz.

Common in every pool of water and along the banks of rivers and creeks. This is one of the earliest arrivals among the cold weather visitants.

891.—Rhyacophilus glareola, *Lin.*

Males.—Length, 8·20 to 9·0; expanse, 15·0 to 15·25; wing, 4·75 to 4·92; tail, 2·0 to 2·25; tarsus, 1·42 to 1·50; bill from gape, 1·22 to 1·25; at front, 1·08 to 1·12; closed wings fall short of end of tail, 0·33 to 0·42; weight, 2·12 ozs. Legs greenish brown.

Very common in every pool, creek, and river; when flushed, utters its loud note.

892.—Totanus ochrophus, *Lin.*

30*th March* 1878, *Male.*—Expanse, 17·0; wing, 5·46; tail, 2·50; tarsus, 1·33; bill from gape, 1·42; at front, 1·30; weight, 2·62 ozs. Legs greenish.

Rather common in the cold weather in suitable places.

894.—Totanus glottis, *Lin.*

Females.—Length, 14·50 to 15·0; expanse, 23·50 to 24·50; wing, 7·33 to 7·50; tail, 3·0 to 3·25; tarsus, 2·33 to 2·50; bill from gape, 2·30 to 2·52; at front, 2·10 to 2·20; weight, 6·12 ozs. Bill bluish at base; blackish tip; legs greenish.

Very common in the cold weather along the rivers and creeks. Towards the beginning of April they gather in flocks of 40 and 50, and by the end of that month leave the country.

897.—Totanus calidris, *Gmel.*

2*nd April* 1878, *Female.*—Length, 11·0; expanse, 19·50; wing, 6·08; tail, 2·92; tarsus, 1·83; bill from gape, 1·92; at front, 1·40; weight, 4·12 ozs. Bill, base reddish; rest blackish; legs pale reddish; irides brown.

I only saw three individuals during the season, very noisy and wary. The female I shot while hovering over a *Phalacrocorax pygmæus* whom it was annoying. Had it not been so occupied, I could never have got near it.

898.—Himantopus candidus, *Bonn.*

Common in the larger swamps in small parties of 8 and 10. By the end of March they commence leaving the district.

900.—Parra indica, *Lath.*

26*th January* 1878, *Male.*—Length, 10·20; expanse, 21·25; wing, 6·25; tail, 2·0; tarsus, 2·42; bill from gape, 1·20; at front, 1·04; closed wings fall short of end of tail, 0·16; hind claw, 2·10.

26*th January* 1878, *Female.*—Length, 12·0; expanse, 24·0; wing, 7·12; tail, 2·25; tarsus, 2·75; bill from gape, 1·30; at front, 1·12; closed wings exceed end of tail, 0·50; hind claw, 2·37.

Very common during the rains, when they may be seen in the cuttings along side of roads, and in swamps as well as paddy fields. During the cold weather they are found in weedy tanks and beels. They lay in July and August. All the eggs I have found have been laid on masses of rotten vegetation which were submerged, the eggs being on the water level. In no instances have I found dry weeds under the eggs, nor has there been any approach to a nest. I saw very few white-breasted birds even during the cold weather.

901.—Hydrophasianus chirurgus, *Scop.*

2*nd April* 1878, *Male.*—Length, 16·10; expanse, 23·50; wing, 7·50; tail, 4·0; tarsus, 2·08; bill from gape, 1·20; at

front, 1·06 ; closed wings fall short of end of tail, 0·75 ; weight, 4·87 ozs. Irides yellowish brown ; bill leaden ; legs green in winter plumage.

2*nd April* 1878, *Female.*—Length, 16·75 ; expanse, 25·50 ; wing, 8·16 ; tail, 3·75 ; tarsus, 2·16 ; bill from gape, 1·22 ; at front, 1·15 ; closed wings fall short of end of tail, 0·66 ; weight, 5·87 ozs. Irides yellow ; bill leaden ; legs green.

Very common during the rains, when it is found in every swamp. From October to March it is not observed, and has evidently left the district. The female above mentioned has a good deal of ferruginous about the head and wing coverts, showing the juvenile stage. Both the above birds have the pointed appendage on the tips of the 1st and 4th primaries. It breeds here during the rains on masses of floating vegetation in swamps, making a rude nest of aquatic plants.

902—Porphyrio poliocephalus, *Lath.*

15*th June* 1878, *Female.*—Length, 17·0; expanse, 30·0; wing, 10·0; tail, 3·50; tarsus, 3·60; bill from gape, 1·52.

17*th June* 1878, *Male.*—Length, 16·60 ; expanse, 31·0 ; wing, 9·83 ; tail, 4·0 ; tarsus, 3·33 ; bill from gape, 1·56. Bill and legs red ; irides red.

Very local in its distribution. Some places hold dozens of these birds, while others, which are just as suitable, cannot show one. They frequent paddy fields and swamps covered with long grass ; a deal of paddy is destroyed by these birds ; they cut the stalks from just above the roots and eat the tender pith ; breed in June and July, for the female above mentioned had fully formed but soft eggs in the oviduct. The natives affirm that during the cold weather these birds lose the flight feathers and then lay up in holes under ground in "Sun" grass fields, but whether the cavities are made by the birds or have belonged to jackals, &c., they could not say. One of my peons told me that he caught over 20 birds one season from a grass field ; they however run well and are not caught without a good chase. I am inclined to believe the man ; he had no object in telling a falsehood ; and it was on my showing him the skins that he mentioned the fact.*

904.—Gallicrex cinereus, *Cmel.*

11*th June* 1878, *Female.*—Length, 14·30 ; expanse, 24·25 ; wing, 7·16 ; tail, 2·75 ; tarsus, 2·75 ; bill from gape, 1·42 ; at

* I don't think that there is any foundation for this native story. At any rate I have shot numbers in perfect plumage, in December, January and February. They are very poor fliers, and if caught out in the middle of a *large* grass field, *might*, perhaps, be run down; but I disbelive their losing the flight feathers during the cold season, and *à fortiori* the "hole" part of the story.—Ed.

front, including cere, 1·66. Irides brown ; claws light horny ; bill below greenish yellow ; above horny ; legs greenish brown ; cere blackish ; mouth, inside pale fleshy.

Very common during the rains all over the country in the standing paddy. During the cold weather where they went to I never could find out. They breed in the district in July and August. As regards the artificial incubation of the eggs of this species, see my letter, S. F., I., 531.

905.—*Gallinula chloropus, *Linn.*

When riding in to the Rajbaree station on the E.B. Railway in February 1878, I saw about 30 of these birds swimming in a tank which was on the outskirts of a heavy patch of cane jungle ; not having a gun with me, I did not secure any specimens. I never again came across the birds, but I am positive as to their having belonged to this and not the white-breasted species.

907.—*Erythra phœnicura, *Pennant.*

These are very common, keeping to the patches of cane and bush jungles which surround the villages in this part of the country, and in the early morning they venture into the fields that skirt these jungles ; they are very often seen feeding about the village roads wherever these are bordered by cane jungle.

915.—*Leptoptilus argalus, *Lath.*

Seen in large flocks in October and April, when they are passing through on their migrations. Some times as many as 300 are in a flock both in the blue grey and black plumage. A straggler or two, however, is sometimes seen during the cold weather. In Calcutta every one knows how fearless this bird is, but when they are in large flocks they frequent the pools of water and ditches in open paddy fields. At Dhoopgooree in the Julpigorie district, and close to the Gwaber Tea Association's garden, are several large forest trees surrounded with dense jungle, on which several pairs of these birds (or the *may* have been *javanicus*) breed annually during the cold season ; I unfortunately could not look them up when they were laying.

919.—Ciconia alba, *Belon.*

2nd March 1878, *Female.*—Length, 51·75 ; expanse, 77·50 ; wing, 24·0 ; tail from vent, 9·75 ; tarsus, 8·50 ; bill from gape, 7·75 ; at front, 7·16 ; closed wings equal end of tail. Legs dirty pink ; bill bright pink.

Far from common. A few couples seen during the cold season when they are found in the beds of jheels wherever there is a little water. The one I shot was alone, and had alighted on a "Bombax" tree at dusk when I knocked her over.

920.—*Dissura episcopa, *Bodd.*

Pretty common during the rains. The Natives (who call the bird "Manickjor") say the bird breeds in high trees. During August and September they are very shy, keeping to the pools of water in large open plains, and consequently very difficult to shoot.

923.—*Ardea cinerea, *Linn.*

Pretty common. I once saw about a dozen of this species in amongst some cattle that were grazing about 200 yards away from a swamp. This is the only instance I can recollect of ever having seen this Heron feeding out of water and slush. I have repeatedly tried to stalk them, but to no purpose; for as soon as I would be about 100 yards from them, away they would go. This, with the open spots in swamps that they frequent, renders it very difficult to secure a specimen.

924.—Ardea purpurea, *Linn.*

15*th June* 1878, *Male.*—Expanse, 57·50; wings, 15·0; tail, 5·16; tarsus, 5·75; bill from gape, 6·30; at front, 5·37. Irides yellow; orbital skin bluish purple; legs, from knee above, yellow; below, in front, blackish brown; behind light yellow; soles bright yellow; bill, for two inches of the anterior portion of upper mandible, black; rest yellowish, with a tinge of dusky.

Very common and a permanent resident. It must breed in July and August, for the above bird's generative organs were increasing in size; they are very shy; frequents swamps.

927.—*Herodias garzetta, *Linn.*

Common during the cold season. Where this species gets away to during the rains I do not know, but all the birds I have shot during the winter had the legs and bill black, so were not to be mistaken for *B. coromandus.*

929.—*Bubulcus coromandus, *Bodd.*

Common and a permanent resident. A small hamlet situated in a large plain and surrounded with water during the rains was pointed out to me as a place where these birds used to breed yearly. There were several Tamarind trees there on which the nests used to be built.

930.—*Ardeola grayi, *Sykes.*

Excessively common. The nuptial plumage is assumed in May, and changed in October.

931.—Butorides javanica, *Horsf.*

Males.—Expanse, 22·0 to 26·0; wing, 6·75 to 7·0; tail, 2·0 to 2·75; tarsus, 1·83 to 2·0; bill from gape, 3·35 to 3·43; at front, 2·50 to 2·58.

Female.—Expanse, 25·50; wing, 6·75; tail, 2·66; tarsus, 1·80; bill from gape, 3·58; at front, 2·60; weight, 6·62 ounces.

Common along the banks of streams and nullahs; feeds principally at night, but does not miss a chance of securing a morsel when offering even in the day.

932.—Ardetta flavicollis, *Lath.*

15*th June* 1878, *Female.*—Expanse, 27·0; wing, 8·0; tail, 2·50; tarsus, 2·54; bill from gape, 3·80; at front, 3·12; weight, 11·87 ozs. Mouth, inside deep fleshy; bill livid red brown; dusky on the culmen, and light below; naked skin of face livid; irides bright purplish brown; legs reddish brown; ovaries the size of peas.

17*th June* 1878, *Male.*—Expanse, 27·0; wing, 8·0; tail, 2·58; tarsus, 2·50; bill from gape, 3·82; at front, 3·08; weight, 11·12 ozs. Legs reddish brown; naked skin of face livid purple; irides as in the female; bill blackish brown, pale beneath.

The above two were shot in a swamp, which was overgrown with rushes, in which I had shot both *A. cinnamomea* and *A. sinensis*. Far from rare. I cannot recollect ever having seen it flushed from a river or creek.

933.—Ardetta cinnamomea, *Gmel.*

Males.—Expanse, 20·16 to 21·50; wing, 5·75 to 6·08; tail, 1·60 to 1·83; tarsus, 2·08; bill from gape, 2·80; at front, 2·0; weight, 5·37 to 5·75 ozs.

Bill yellow, dusky on culmen; gape and cere yellow; legs greenish yellow; irides yellowish; soles of feet yellow.

Common in rush and reed-covered swamps, and also on the banks of rivers wherever there is sufficient brushwood to afford concealment; lays during July and August.

934.—Ardetta sinensis, *Gmel.*

1*st June* 1878, *Male.*—Expanse, 17·50; wing, 5·33; tail, 1·83; tarsus, 1·92; bill from gape, 2·80; at front, 2·16; weight, 3·37 ozs.

Irides yellow ; lores bright yellow; orbital skin greenish yellow ; legs pale green ; soles bright yellow; claws horny ; mouth, inside fleshy ; bill, below pale yellow ; edges dusky ; upper mandible dusky. On dissection the testes were found to be slightly enlarged.

Rather rare ; frequents swamps and paddy fields. An awful skulk, not rising till a person is within a few feet of it. Breeds in the district in July-August, but I failed to find the nest.

937.—Nycticorax griseus, *Linn.*

12*th April* 1878, *Female.*—Expanse, 36·0 ; wing, 11·0 ; tail, 3·75 ; tarsus, 2·75 ; bill from gape, 3·82 ; at front, 2·75. Irides purplish red ; legs greenish yellow ; bill, above and tips black ; rest greenish ; lores and orbital skin verdigris green.

12*th April* 1878, *Young Female.*—Expanse, 36·0 ; wing, 10·50 ; tail, 3·16 ; tarsus, 2·75 ; bill from gape, 3·64 ; at front, 2·70. Legs light green; irides brick red ; lores and orbital skin dusky green.

Very common ; they have certain trees (generally tamarind) for roosting, where during the day they may be seen in dozens, and on a shot being fired the flock take wing and keep whirling about overhead until all signs of danger are gone. Their flight is slow and laboured. In two villages near the factory I saw them roosting on tamarind trees that were right in the centre of the villages. They breed on these trees in August, and according to the villagers use the same nest after some slight repairs, year after year. Their food is frogs, fish, and aquatic insects.

938.—Tantalus leucocephalus, *Gmel.*

8*th April* 1878, *Male.*—Length, 41·80 ; expanse, 71·0 ; wing, 20·0 ; tail, 6·25 ; tarsus, 8·10 ; bill from gape, 10·08 ; at front, 10·08 ; closed wings exceed end of tail, 1·0. Irides light brown ; legs fleshy red ; orbits and gular skin dirty yellow ; bill orange yellow.

By no means common. A rainy season visitant. The south-eastern corner of the Mymensingh district is one huge swamp covered with scrub and long grass, and on the large trees about these birds lay in the cold weather ; the half-fledged birds have been brought to me in the second week of December. I once kept a pair of young ones which became perfectly tame ; they used to eat small fish and would come up to the boy who gave them their food on being called. When being fed they would clatter the mandibles, shaking the head from side to side all the while, and uttering a hoarse croaking noise. On reaching

maturity, they would go off for the greater part of the day to the paddy fields, returning home just before sunset. All night they used to remain on the roof of one of the large jute godowns in the compound. Of a stormy night, whenever there was a flash of lightning, I could see the pair on the roof with their wings half open to steady themselves and heads pointing to windward. They could have come under shelter had they a mind to do so. A wretched native shot the male, and a few days after the female disappeared.

940.—Anastomus oscitans, *Bodd.*

19*th June* 1878, *Male.*—Expanse, 59·50 ; wing, 16·75 ; tail, 7·50 ; tarsus, 6·25 ; bill from gape, 6·40 ; at front, 6·30. Legs fleshy, with a good many patches of scurf ; claws black ; irides brown ; bill, basal portion of under side of lower mandible dusky blue ; rest of bill blackish ; rest of bill greenish ashy, deeply tinged with red on tip of lower mandible ; eyelids purplish.

These birds are pretty common from March to September, but whether they breed in the district or not I cannot say. In Sylhet I have seen them in flocks in the cold weather. The ashy-coloured birds are in excess of the white ones, (*v.* Bingham, S. F., IV, 213).

941.—Ibis melanocephala, *Lath.*

A cold weather visitant, frequenting pools of water and marshes. In March I have seen flocks of 30 or 40. This is just prior to migrating.

943.—Falcinellus igneus, *Gmel.*

Small parties seen occasionally during the rains. On the 18th May 1878, while out shooting on the Chapadahoo Beel, I saw a flock of 8 of these birds fly overhead about 150 yards up, so that I am certain of the identification.

949.—Anser indicus, *Gmelin.*

I observed small parties of this species flying overhead on two or three occasions, but they were out of range. In the Ganges river, which runs past the northern boundary of the district, they are found in flocks in the cold weather. In the adjoining district of Dacca I have shot *A. cinereus* in company with this species. I have never come across these Geese feeding in the paddy fields of a morning, as they are in the habit of doing in Behar.

951.—Nettapus coromandelianus, *Gmel.*

Males.—Length, 13·25; expanse, 20·75 and 21·25; wing, 6·42 and 6·66; tail from vent, 3·10 and 3·25; tarsus, 1·0 and 1·04; bill from gape, 1·08 and 1·20; at front, 0·92 and 0·94; closed wings fall short of end of tail, 1·0 and 1·25; weight, 9·75 and 10·87 ozs. Irides crimson.

Very common during the rains; and I have on several occasions noticed them during the cold season. Frequents swampy ground. Builds in holes in trees at no great height from the ground. I once found a nest in a hole in a date tree at 7 feet from the ground and close along side of a ryot's house. There were twigs and feathers from their own breasts made into a nest; one fresh egg. Some native boys killed the female, and I never again found any more breeding in that hole; they even lay their eggs in the Factory chimney holes. When blowing the above mentioned egg I noticed the drops appear phosphorescent as they fell on a "pucca" floor; the floor was perfectly clean, so cannot make out the reason for this appearance. The egg had no bad smell, and appeared to be fresh.

952.—Dendrocygna javanica, *Horsf.*

Males.—Expanse, 29·50 to 30·0; wing, 7·50 to 8·04; tail, 2·50 to 2·75; tarsus, 1·90 to 1·92; bill from gape, 1·80 to 2·06; at front, 1·58 to 1·75. Irides dark brown; legs dark plumbeous; eyelids yellow; bill, base plumbeous, shading into a black tip.

Common during the rainy season, when they go about in pairs; builds its nest on trees as well as on the ground in "Sun" grass fields. During the cold weather I on two or three occasions saw small flocks of *Dendrocygna*, but whether of this or the larger species, (*D. fulva*) I cannot say.

954.—*Casarca rutila, *Pall.*

A cold weather visitant found on the churs of the large rivers, but nowhere common. During a day's sail a few pairs may be seen; the open places that they frequent makes it a difficult task to secure a specimen. In the house where I live at Howrah a pair (bought from a fowler in December 1877) have been let loose in the tank with their wings clipped; the scapulars of the male during the rainy season have become considerably lengthened, and when he closes his wings none of the white wing-coverts are visible; thus making him appear of an orange fulvous colour throughout, no traces of the black collar in either during

the hot season. The male is of a *deep* orange fulvous with the head of a yellowish white, and now in the cold season has a black ring round the neck. The female is of a pale orange fulvous with a pure white head; and the whole of the wing-coverts pure white; both have the upper tail-coverts chestnut, with brown zig-zag markings on both webs, which become darker until they shade into the black tail; under tail-coverts bright ferruginous.* The male bird is rather tame, but his mate is as wild as ever. They feed with the domestic ducks, but at night they remain at the waters' edge one on each of the tank step buttresses. The last birds (a party of 5) seen in Furreedpore this season was on the 9th April.

962.—Dafila acuta, *Lin.*

In large flocks during the cold weather, easily distinguished by their swift flight and pointed tail. I could not manage to secure a specimen as they were very wild. During the day no wild ducks were seen anywhere near the factory, as they were resting in the Ganges due north about 20 miles, but in the morning I used to see great flocks going north; they used to come at dusk and feed in all the "beels" around, and be off again after sunrise.

965.—Querquedula circia, *Lin.*

Males.—Length, 16· and 16·10; expanse, 23· and 25·50; wing, 7·25 and 7·33; tail from vent, 3·16 and 3·50; tarsus, 1·08 and 1·25; bill from gape, 1·75 and 1·83; at front, 1·55; closed wings fall short of end of tail, 0·75 and 1·16; weight, 13·37 oz. Legs bluish; bill black; irides brown.

Females.—Length, 15· and 15·50; expanse, 24· and 25·12; wing, 6·92 and 7·08; tail from vent, 2·83 and 2·92; tarsus, 1· and 1·08; bill from gape, 1·75; at front, 1·50 and 1·56; closed wings fall short of end of tail, 0·33 and 0·66. Legs bluish; bill black; irides brown.

Swarms in the cold weather in all the small beels about the country. During the day they used to remain in the Ganges, and at night come to the interior to feed. The Ganges from my factory was about 20 miles. By the 16th April not a bird was to be seen, all having migrated.

967.—Fuligula rufina, *Pallas.*

7th February 1878, *Female.*—Length, 22·0; expanse, 35·0; wing, 10·08; tail from vent, 3·50; tarsus, 1·75; bill from

* Having been kept down in the plains during the hot season, the plumage is not normal.—Ed.

gape, 2·25; at front, 1·90; closed wings fall short of end of tail, 1·0. Bill black; tip reddish; legs salmon red; joints dusky.

Secured this bird from a flock that was flying round a jheel, having been disturbed by my previous shot, and as it was dark, I could not make out whether the others, which flew away, were of this species.

975.—Podiceps minor, *Gmel.*

Male.—Length, 8·10 to 9·; expanse, 16·75 to 17·0; wing 3·75 to 4·0; tarsus, 1·25; bill from gape, 1·16 to 1·18; at front, 0·80 to 0·83; weight, 5·5 ozs.

Female.—Length, 8·20; expanse, 16·25; wing, 3·83; tarsus, 1·25; bill from gape, 1·12; at front, 0·77; weight, 5·87 ozs.

A few hairs projecting from the *os-coccygis* do duty for a tail; irides red brown in adults, reddish yellow in the young; bill blackish, conspicuously white tipped; gape sulphur yellow. Immature birds have the culmen black; the rest of the bill light orange; legs greenish ochre; soles black. The birds killed in June had the sulphur yellow spot, which very likely is only seasonal. Jerdon does not seem to have noticed this spot. During the cold weather these birds are not to be seen, but from April they were plentiful in all the large "beels." None of those dissected by me showed signs of breeding.

980.—*Larus brunneicephalus, *Jerd.*

Common in all the large rivers during the cold weather. I have also shot it in the Chapadahoo Beel, which is a sheet of water about a mile in length and quarter of a mile in breadth, and only 3 miles inland from the Muddoomuttee river.

983.—*Gelochelidon anglica, *Mont.*

Excessively common in all the rivers, creeks and beels; but whether it is a permanent resident or not I cannot say, not having paid attention to it.

984.—Hydrochelidon hybrida, *Pall.*

28*th March* 1878, *Female.*—Length, 10·33; expanse, 25·42; wing, 8·54; tail from vent, 3·37; tarsus, 0·83; bill from gape, 1·50; at front, 1·0; closed wings exceed end of tail, 2·0; weight, 2·62 ozs. Bill and legs red, with a blackish tinge.

Common along all the rivers and creeks, also any large marsh; only seen during the cold weather.

985.—Sterna seena, *Sykes.*

4th June 1878, *Male.*—Length, 14·75; expanse, 31·0; wing, 10·75; tail from vent, 4·66; tarsus, 0·83; bill from gape, 2·46; at front, 1·62; closed wings exceed end of tail, 1·0; weight, 5·25ozs. Irides, dark brown; bill, bright yellow; legs, vermilion; mouth, inside yellow.

Very common and a permanent resident; frequents all the rivers and jheels, very often seen hawking over dry paddy fields.

987.—Sterna melanogastra, *Tem.*

4th June 1878, *Male.*—Length, 12·75; expanse, 25·0; wing, 8·75; tail from vent, 5·50; tarsus, 0·58; closed wings equal end of tail; weight 2·5oz. Irides, brown; bill, bright orange yellow; legs, dark orange yellow.

Very common, frequenting all the rivers, creeks and jheels, and even hawking over dry paddy fields far away from any river. It is a permanent resident, but I failed to find the eggs.

988.—Sterna gouldi, *Hume.* S. F., V., 326.

16th June 1878, *Male.*—Length, 8·10; expanse, 19·25; wing, 6·46; bill from gape, 1·56; at front, 1·12; tail from vent, 2·58; tarsus, 0·62; closed wings exceed end of tail, 1·25; weight, 1·25oz. Irides, dark brown; legs, dusky orange; mouth, inside yellow; bill, dusky greenish yellow; the base of culmen and tips of both mandibles black.

Not common. Occasionally a small party of half a dozen may be seen hawking along the banks of the large rivers; they beat the shores steadily just the same as a Harrier does a field. They seldom are seen on the smaller rivers.

995.—*Rhynchops albicollis, *Swains.*

Common from April to the end of October, when small parties are seen on all the larger rivers, and even at times in "beels" of any extent. From their not being seen until April, I conclude they do not breed in the district.

1003.—Pelecanus javanicus, *Horsf.* apud *Jerd.*

15th February 1878, *Female.*—Length, 56·0; wing, 24·0; tail from vent, 7·75; tarsus, 4·10; bill from gape, 14·33; at front, 13·0. Legs, fleshy yellow; irides, red; bill, nail crimson; above yellow, with a blue stripe down the centre and two short ones on each side of the base; below yellow in front, bluish at base; facial skin, fleshy; pouch yellow with purplish veins.

I shot the above out of a flock of about 50 birds, while they were fishing in a jheel. There were a few grey ones along with this species. Another evening a flock of near 40 alighted on some Casuarina trees in front of my house, but that very morning my gun had been sent off to Calcutta for repairs and I could only look at them, and bewail my ill-luck. I, on several occasions, saw large flocks wheeling overhead, but never again got a shot at any.

1004.—*Pelecanus philippensis, *Gmel.*

When speaking of the last species I mentioned having seen several grey ones, amongst a flock of them; the grey birds appeared to be larger, and on the 4th April 1878, a party of 5 Grey Pelicans flew overhead, which showed a deal of grey on the wing feathers, and a grey tail. Now *P. javanicus* has a white tail, so I am inclined to conclude that they belonged to *philippensis*, though they may have been only the young of *javanicus*.

1007.—Phalacrocorax pygmæus, *Pall.*

Excessively common and a permanent resident. Breeds in August on large trees in company with Pond Herons, Snake Birds, &c. I have never noticed them in any of the rivers in which there was much current.

1008.—*Plotus melanogaster, *Penn.*

Common. Seen associating with flocks of the Little Cormorant, in all the small rivers and "beels." The Buddeas, a race of Gipsies who travel about the Eastern Bengal Districts in boats, are very fond of keeping these birds. Every boat has one of this species perched up on the stern. They are permanent residents and breed here in August. A small hamlet around which grew several Tamarind and "Jeeul" trees was shown to me as a place where several pairs of this species, together with numerous Pond Herons and Little Cormorants built their nests. The whole country round it was submerged during the rains.

Novelties.

Asio butleri, *Sp. Nov.* ?

Like Asio accipitrinus, *but smaller; wing more rounded; tarsi slenderer and longer; feet smaller and less feathered, exactly in this respect as in* A. madagascarensis; *colours of upper surface altogether different, more those of* Bubo coromandus.

I class this somewhat aberrant new form, as *Asio*, though I cannot make out in my single indifferent specimen any very distinct ear tufts; nor can I say that the cere appears to me much longer than the culmen. As far as I can make out, they are precisely equal in length; but, taken as a whole, the bird is clearly, in my opinion, nearer *Asio* than any other recognised genus, though I should not be surprised if ornithologists hereafter should separate it as the type of a distinct genus or subgenus.

I have only one specimen of this species, a nearly flat skin, with the breast and head much injured, but the rest in good order. This skin I owe to my indefatigable and devoted coadjutor, Captain E. A. Butler, after whom I have named it, and to whom I must not neglect to express my many obligations. He procured it for me through one of his friends, Mr. Nash, I believe from Omara, on the Mekran Coast. It is certainly I think new; at any rate it is not amongst those included by Mr. Sharpe in the 2nd Volume of his valuable catalogue either in text or notes.

The following are the dimensions in the skin, but it is a good deal stretched, and the *real* length is probably somewhat less than I have given it.

Length, 14·0; wing, 9·95; tail, 6·0; tarsus, 2·05; bill from gape, 2·0; straight from margin of cere to point, 0·6; length of cere to frontal bone, 0·62; mid-toe claw straight from root to point, 0·55 against 0·8 in *accipitrinus*; tarsi much slenderer and longer than in that species; toes slenderer and less feathered; mid toe to root of claw, 1·1; wing rounded; 3rd quill longest; 4th 0·2, 2nd 0·7, 1st 2·1 shorter than 3rd; first about equal to seventh; first four quills distinctly notched on the inner webs; third and fourth distinctly emarginate on outer; second feebly so. There seems to be just as much of the disc above as below the eye.

The chin, cheeks and entire space inside the ruff white, tinged fawny below and behind the eye; some few of the loral bristles dark-shafted towards their tips, but inconspicu-

ously so; the feathers of the ruff across the throat and as far as opposite the gape are grey brown, margined throughout their length pretty broadly, and tipped with cream color, more rufescent, and fawny towards the tips; the rest of the feathers of the ruff from the gape round behind the eye are very peculiar; when examined closely they are rather pale French grey on one surface, warm brown on the other surface, and obscurely tipped with rufescent fawn.

The forehead, crown, occiput and nape are a pale rufescent fawn, obscurely mottled with dusky brown; when the feathers are closely examined, the basal portions are bluish dusky, the rest pale rufescent fawn or buff, with an obscure ill-defined dusky brown bar, some little distance from the tip, and another imperfect bar or spot of the same color near the tip.

The lesser wing-coverts from the carpal joint to the body are an uniform smoky brown, somewhat intermediate between a hair-brown and an earth-brown. The scapulars, back, median and greater wing-coverts are dull pale rufescent fawn, clouded and streaked with this same brown—most of the secondary, median and greater coverts having more or less pure white spots or blotches on the outer webs near the tips. The first primary is almost uniform brown, a shade darker perhaps than the lesser coverts, edged creamy white on the outer web, and a mottling of the same towards the middle of the inner web near the base. The rest of the quills are a lighter and perhaps greyer shade of this same brown, regularly barred with pale fawn color, which is duller and shaded with grey brown on the inner webs towards the tips, and becomes white away from the shaft, towards the bases. The tail is tipped with nearly pure white, and is exactly of the same character as the quills, but the bars in the two central-feathers are reduced to mere blotches on either side of the shaft. The breast and abdomen appear to have been creamy; the feathers of the sides of the former, with a few very indistinct transverse dusky bands, and those of the latter with narrow brown shaft stripes.

The entire wing-lining (except the tips of the greater primary lower coverts, which are dusky brown,) the whole basal portions of the quills, the vent, lower tail-coverts and feathers of the legs and feet pure white.

The lower surface of the tail grey brown, barred with white. The terminal portions of the quills on their lower surface, and the whole of the first primary, grey brown; the first with one patch, others with obscure bars of greyish or brownish albescent.

As far as I can judge this bird is fully adult; indeed the lower mandible is a good deal worn, and it may be quite an old bird.

In the dry skin, the greater part of the bill and cere are blackish horny, but the culmen and the tips of both mandibles are pale yellowish horny. The bare portion of the feet appears to have been green. The claws, which are extremely small for the size of the bird, brown, paler and more fleshy at their bases.

Recently-described Species.

Republications.

Trichastoma leucoproctum, *Tweed.*

Female.—Above olivaceous ruddy brown, more rusty at the tips of the upper tail-coverts, greyish on head, a tinge of pale rufous on a narrow frontal band, passing to the pale lores. Two centre tail feathers umber brown. The three outer tail feathers edged pure white on the inner web, the extent of white edging increasing inwards, until the whole inner web of the antepenultimate feather is white, while the fourth is broadly edged white for nearly its whole length on the opposite or outer web; shoulder of wings rusty olive; the primaries dull rusty brown; blotch of white on the upper breast, which is dull pale olive brown, fading into the pure white of the under tail-coverts; wing rounded; first primary half the length of the second, which is quarter inch less than the third; fifth the longest; tarsus and feet moderately strong for this group.

Length about 6½ inches; wing, 3·5; tail, 3·0; tarsus, 0·9; bill at front, 0·63.

Legs and feet grey; irides dark brown.

Hab.—Base of the Mooleyit range, Tenasserim. Obtained by Mr. Assian Limborg.—P. Z. S., 1877, 366.

[Marvellous as it may seem that the Marquis of Tweeddale should fall into such an error, there can I think be little doubt that this supposed new species is merely the female of my *Muscitrea cyanea*, S. F., V., 101, June 1877, re-described as *Niltava leucura* by Lord Tweedaale, A. & M. N. H., August 1877, 95; (see also S. F., VI., 207). I have never seen the female *Muscitrea cyanea*, nor have I seen the supposed *T. leucoproctum*, but the dimensions, colour, arrangement of white

in the tail, &c., leave, I think, no possible doubt that this latter is the female of the former.

But this raises a fresh question. My name was only actually published on the 17th June, though it had been written months previously. The Marquis of Tweeddale's paper was received in the Zoo, on the 14th April, but when was the number containing it actually published? So far as I can make out not till *August*, but this Dr. Sclater can tell us.—A. O. H.]

Chrysococcyx limborgi, *Tweed.*

Description.—Above fine rich purple, with steel reflections; wings and tail the same, somewhat darker; throat and breast same as the back; two outer tail-feathers with a similar white tip, and four spots on the outer web of the last, with a short white streak on the inner web opposite each spot, the two together having a tadpole-like outline; lower breast and vent white, the feathers broadly barred with green and purple, and overlapping, form a succession of regular bands; the bars on the under tail-coverts are broader and of a stronger purple tint; under surface of wing white at the inner base of the primaries and secondaries, forming a narrow white bar inside the wing; a pure broad white crescentic collar on the lower nape, commencing low down on the side of the neck; bill yellow; legs rich green; irides red, and a bright crimson orbital skin.

Length about 6 inches; wing, 4·0; tail, 3·1; tarsus, 0·6.

Hab.—Base of Mooleyit range, Tenasserim.

This species (which, while closely allied to, differs from, *C. xanthorhynchus*, Horsf., by having a broad white nuchal collar) was discovered by M. Assian Limborg under the Mooleyit range, east of Moulmein, in January of the present year—P. Z. S., 1877, 366.

Prinia poliocephala, *A. Anderson.*

Similis P. stewarti, *et fronte cinerea pileo concolori, sicut in hac specie; sed dorso brunneo nec cinereo diversa; rostro nigro; pedibus pallide brunneis, iride pallide flavida; palpebris pallide stramineis.*

Long. tot, 3·8; culminis, 0·45; alæ, 1·7; caudæ, 1·8; tarsi, 0·8.

Hab.—Kumaon, Bagesur Valley, 3—4,000 ft., 18th June.

This species is of the same group as *P. cinereocapilla* and *P. stewarti*, but is distinguished from both by trenchant characters, which may be expressed in the following synoptic table:—

a. Back grey, as also the entire head.....*Stewarti.*

b. Back rufescent brown, contrasting with the head, which is grey.

*a*¹ Forehead grey, like the crown..... .....*poliocephala.*

*b*¹ Forehead fulvous; crown of head grey, *cinereocapilla.*

—P.Z.S., 1878, 370.

Birds occurring in India, not described in Jerdon or hitherto in "Stray Feathers."

In preparing the rough tentative list, which I have been so often urged to publish, of all the birds known or asserted, within recent times, to occur within the limits of our Indian Empire, with references to the passages in Jerdon's "Birds of India" or STRAY FEATHERS, in which they are described or discriminated, I find many species of which no description has appeared in either of these works.

I proceed, therefore, preparatory to the publication of this list, which is now with these exceptions ready to issue, to furnish the wanting descriptions.* These I take from my own "Rough Notes," "Nests and Eggs," and my portion of Lahore to Yarkand, articles, and letters to the *Ibis*, &c.; from Sharpe's Catalogues, Dresser's great work on the "Birds of Europe," &c., &c., the sources whence my extracts are drawn being duly noted in each case. I have in some instances compressed the descriptions.

I do not say that I think these descriptions in all cases by any means what they should be,† but I have no time now to re-write these or prepare new ones, and all are I think sufficient for most practical purposes.

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* To my European and American readers this will necessarily appear a pure waste of paper, and so it is to those who possess or have access to Ornithological Libraries. But STRAY FEATHERS is above all things a journal for Indian Field Naturalists who possess no such facilities, and they absolutely require to have all these descriptions available, and without these the list for which all are crying out would be even more incomplete than my ignorance must necessarily after all render it.

† It is specially where some of the Raptores and the Ceylon birds are concerned that the descriptions are meagre. The latter I have purposely avoided taking up in any detail, as Captain Legge is about to produce a separate work on the Ornithology of the Island. The very brief descriptions I have given will suffice to enable people to identify the species, and if they require further details, they can refer to his work, which will be immediately published.

In some cases, where Jerdon's descriptions (quoted, doubtless, from other authorities) seemed to me specially insufficient, I am giving others. I might with advantage have done this in many more cases, but I have had no time to work the subject up, and merely take action under pressure and protest, hoping that, with all its shortcomings, what I do may yet materially facilitate the labours of my fellow-workers here.

1.—Vultur monachus, *Lin.*

Length, 42 to 45; expanse, from 96 to 118; wing, from 29·5 to 32; tail from vent, from 13 to 16; tarsus, 4·8 to 5·5; bill from gape, 3·6 to 4·0; weight, from 12 lbs. to nearly 20 lbs., 14 lbs. being the average for males, and the females being considerably heavier.

The tarsus is covered in front, and on the sides, for more than half its length, with a dense, almost silky fur, which in *one place* almost meets behind. The bare portions of the tarsus and the feet are, in some, a clear, slightly creamy white; in others, a pearl white, with here and there a barely perceptible pink tinge.

Irides brown; lower eyelid creamy white, (often with a faint delicate lilac or even purplish shade) pinkish at margin, and with a row of thick short eyelash feathers; upper lid and bare eye-shelf pinkish, at times with a lilac shade; cere, gape and base of lower mandible a pale mauve, at times tinged in places with pink; bill horny blackish brown, darker on upper mandible and tip of lower ditto, palest at sides of base of upper mandible and of lower ditto; the lores, cheeks, forehead, crown, occiput, chin and throat, and a patch on the lower mandible, covered with dark brown fur-like feathers, growing lighter towards the occiput. This fur is sparse and rather harsh on the cheeks, chin and throat, but very dense and soft on the upper portions of the head. The naked skin at the back and sides of neck, and the bare patch over the articulation of the jaws (generally continued as a ring upwards, behind and over the dark fur border of the ear aperture, to within one-half an inch or so of the posterior angle of the eye,) creamy, or in some delicate bluish white, occasionally with a shade of pink.

The whole body and wings are a rich, very dark, chocolate brown, (the under surface being darker than the upper,) the quills and tail being almost black. The feathers of the lower part of the back and sides of the neck are of a loose texture,

elongated, and of a slightly lighter hue than the back, and form a conspicuous ruff. Feathers of the upper breast lengthened, acutely pointed, somewhat rigid, and often with the webs a good deal separated. The tail-feathers are remarkably stiff, with the tips much abraded and naked, tipped with extremely stiff, hard projecting shafts, reminding one much of the tail-feathers of many Woodpeckers.

The lower tail-coverts are of a slightly lighter hue than any other part except the occiput.—*Hume,* " *Rough Notes.*"

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3 *bis.*—Gyps fulvescens, *Hume,* " Rough Notes," p. 19, February 1869.

Length, 41 to 47 inches; expanse, 94 to 106 inches; wing, 27 to 29·5; tail of 14 feathers, 12 to 13·5 inches; tarsus, 3·88 to 4·2; bill from gape, 3 to 3·2; weight, 12 to 18 lbs.

The top of the head, cheeks, chin and throat are covered with dingy yellowish white hair-like feathers, so closely set upon the top of the head, chin and throat, and with such an admixture of down that the dark skin, which in the hill bird (*G. himalayensis*) shows so plainly through the scant covering, is, in this species, completely hidden. The nape and the whole of the neck, (except the back and side of the basal one-fifth or less, which are bare or nearly bare,) are closely covered with dense, short, fur-like white or dingy yellowish white down. The crop patch is about the same colour as in the hill bird, but somewhat more rufous, and the whole of the rest of the plumage is a far more rufous, and deeper fawn or buffy brown than in *G. himalayensis.* The lower plumage is in the adult of a rich rufous brown, bay, or even dull chestnut, conspicuously white shafted, whilst the mantle is a warm sandy brown, unlike the colouring of any of our other Indian Vultures. The feathers of the ruff are almost linear, (the web not so much separated as in the hill bird,) usually of a warm wood brown or rufous fawn, the feathers conspicuously paler centred. In one specimen an old female, shot by Mr. Marshall on a nest from which he took the egg, the ruff feathers differ in being of a uniform dingy white, faintly tinged with rufous. The upper back, the whole of the upper wing-coverts, and all but the longest scapulars are a warm wood brown, or brownish rufous fawn, yellower and sandier in some, deeper and more of a bay colour in others. The secondaries, tertials and longer scapulars umber (but *not* dark umber) brown; the latter,

(*viz.*, the longer scapulars) more or less tipped with the rufous or sandy colour of the upper back, which colour, in some specimens, more or less extends to the tips and outer webs of the tertiaries. Lower back, rump, and upper tail-coverts the same colour as the upper back, but of a considerably lighter tint, in some mingled with brown, and in some altogether of a pale pure bay. The primaries and tail-feathers are very dark brown; in some not so dark as the corresponding feathers in *G. himalayensis*, but in others of an intense chocolate brown. Lower parts a rich sandy or rufous fawn or even a deep bay, (the tint varies in different stages of plumage) each feather conspicuously paler shafted, and most of them (in the younger birds) conspicuously, though narrowly, paler centred. The lineated appearance of the lower parts alone at once distinguishes this species from the preceding one.—*Hume*, "*Rough Notes.*"

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3 *ter*.—Gyps himalayensis. *Hume*, "Rough Notes," p. 12, February 1869.

Length, 46 to 49 inches; expanse, 106 to 110 inches; wing, 30 to 31; tail, 15 to 17; tarsus, 4·25 to 4·8; bill from gape, 3·1 to 3·44; weight, 18 to 20 lbs.

The legs and feet are a dingy greenish grey or white; the claws pale brown; the bill very pale horny green, dusky just at tip; cere rather pale brown; skin of cheeks and chin pale brownish grey, or dove colour, with a pure blue tinge round the lower half of the eye.

The adult bird has the whole head, cheeks, chin and throat rather closely covered with yellowish white hair-like feathers; the nape and upper two-thirds of the back and sides of the neck are somewhat thickly covered with yellowish white down; the basal one-third of the back and sides of the neck were bare in all the specimens I have examined, and the front of the neck sparsely studded with star-like tufts of down. The large crop-patch, some 8 inches long by 6 inches in breadth, is densely clothed with small close-sitting pale wood brown feathers. At the base of the back of the neck, rising in all the instances I have seen out of the bare skin, is a ruff of linear lanceolate feathers, about three inches in length, with very loose, separated, filamentous webs of dingy buffy white; upper back, short scapulars and wing-coverts, (except the larger row), a nearly uniform pale brown, or whity brown, many of the feathers inconspi-

cuously paler centred ; mid back pure white, but some of the feathers with a fawn-coloured tinge ; rump and upper tail-coverts more or less fulvous, buffy, or fawny white, (the hue seems to vary in different individuals), some of the longer feathers much tinged towards the tips with brownish fawn colour ; longer scapulars and largest wing-coverts deep umber brown, tipped (in the scapulars broadly) with fulvous fawn, and more or less centred towards the tips with the same colour ; quills and tail-feathers (the secondaries a shade less deep) deep umber brown, freshly moulted ones having a purplish gloss, and being perhaps best described as of a deep chocolate brown ; the whole of the lower parts, including wing-lining and lower tail-coverts, a *very* pale dingy brown, or fulvous white, some of the feathers especially on the sides, with ill-defined, moderately broad, somewhat paler centres, passing imperceptibly into the tint of the rest of the web.

The tarsus is clad in *front*, for nearly, or in some cases *fully*, the upper half, with slightly fulvous white down. The whole of the rest of the tarsus and the back of the joint are quite bare.

In the distribution of the down on the neck, in the somewhat elongated bill, in the paler under-parts, with (in the adult) inconspicuous broad paler centerings to the feathers, and in the more pointed character of the feathers of the back, this species approaches *G. pallescens*. As compared with the previous species, *(fulvescens)* the somewhat greater size, the sparseness and star-like character of the down-tufts about the throat and neck, the paler under surface devoid in the adult of conspicuous narrow pale centerings to the feathers, the looser ruff, longer upper tail-coverts, more pointed back feathers, more powerful feet, with more prominent scutæ and reticulations, serve amongst other differences to distinguish it.

The young bird differs much in its plumage from the adult. Seen flying at a little distance, it appears of a pale bronze colour, and on the wing might possibly be mistaken for the young of *monachus*. When in the hand, however, there is no mistaking it. In the arrangement of down about the neck and throat, in the colour of the bill, bare skin and feet, and quill and tail-feathers, it exactly resembles the adult, but the prevailing hue of all the rest of the plumage is a rich brown, very deep above, somewhat paler below ; *every* feather, except the greater wing-coverts and larger scapulars, with a broad, central, yellowish brown or fulvous stripe. As in the adult, there is a pure white patch on the upper back, extending to the sides of the middle back, but this is usually hidden by the scapulars. The crop patch is a warm brown, much deeper and

darker than in the adult. The down-patch on either side of the crop-patch, and the downy covering of the upper half of the tarsus, and the tibia, pure white. The striped appearance, above described, extends to the wing-lining and ruff of *linear* lanceolate feathers, at the base of the neck behind.

The later secondaries are at all ages very long, and the wings very broad. In the fresh bird, when the wings are closed, the longest primaries are surpassed by the longest secondaries.—*Hume*, "*Rough Notes.*"

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4 *bis.*—Gyps pallescens, *Hume.*

Length, 36·0 to 39·0; expanse, 85 to 90; wing, 23 to 25·5; tail from vent, 10·0 to 11·0; tarsus, 3·5 to 4·0; bill from gape, 2·65 to 2·95; weight, 11 to 14 lbs.

Bill and cere pale greenish, yellowish horny on culmen and blackish towards tips of mandibles; bare skin of head and face dusky ashy leaden; legs and feet dingy ashy leaden; margins of scales whitish; claws creamy horny; irides brown.

In the perfect adult, brownish white hair-like feathers are thinly sprinkled over the head, nape, cheeks, and throat; the upper half of the back and sides of the neck, and whole of the front of the neck are excessively thinly studded with small star-like tufts of down; the lower half of the back and sides of the neck are perfectly bare; the crop patch is closely covered with silky, tight fitting, dark hair-brown feathers; the whole of the rest of the lower surface is a pale whity brown, becoming almost a pure white towards the vent and lower tail-coverts; the ruff is full, soft and pure white, of very downy feathers, the webs much disintegrated; the whole mantle is pale earthy brown, the centres of the lesser, and all but the tips and margins of the larger scapulars, being dark hair brown.

The lower back, rump and upper tail-coverts white, tinged with pale earthy brown, many of the feathers, however, especially of the longer tail-coverts, being brown at the base, but so broadly tipped and margined with the paler colour that little of the brown shows; the primaries and tail-feathers are deep chocolate brown; the secondaries and tertiaries hair brown, more or less suffused, on their outer webs, with pale dingy earthy or fulvous brown.

A quite young bird has the top and back of the head, and upper part of the back of the neck, thickly covered with white down; the rest of the head and neck, as in the adult; the crop patch, much lighter than in the adult, is covered with pale,

dove-coloured, brown feathers; the rest of the lower surface is pale brown, becoming albescent towards the vent, each feather broadly centred, (most conspicuously so on the sides and breast), with dingy white; the ruff, of long linear lanceolate feathers, is a very pale fulvous white, faintly margined with brown; the mantle, a somewhat pale hair brown, every feather *narrowly* but *conspicuously*, centered with fulvous white; the quill-feathers and tail-feathers chocolate brown, darkest on the primaries and rectrices; the lower back, rump, and upper tail-coverts are nearly pure white, only a few of the longest of the latter being tinged with brown.

In an intermediate stage, the crop patch is intermediate in colour between that of the adult and of the young, as is also the colour and character of the ruff, and indeed of the whole plumage.

This bird differs at all ages from *bengalensis*, in having fourteen instead of twelve rectrices.—*Hume*, "*Rough Notes.*"

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4 *ter.*—Gyps tenuirostris, *Hodgson.*

In plumage this species closely resembles the Eastern *Gyps indicus*,* but differs in the much slenderer bill and head. The following are dimensions and colours of the soft parts of a specimen shot by Dr. Scully in the Residency grounds, Khatmandoo, Nepal.

Length, 38·5; expanse, 89·5; wing, 23·4; tail from vent, 10·7; tarsus, 3·9; bill from gape, 2·85; weight, 12lbs.

Bill brownish dusky horny; the culmen yellowish horny; cere horny black; irides deep brown; skin of head and neck dark muddy; tarsi and toes black; edges and interspaces of scales earthy; claws dusky or horny black.

From *pallescens* this species differs, not only in its slenderer head and bill and its darker plumage, and in the amount of feathering on the head and neck, in which two latter respects it agrees with *indicus*, but also in the wholly different coloring of the soft parts.

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9 *bis.*—Falco atriceps, *Hume.* "*Rough Notes*," *p.* 58, *February* 1869.

A fine adult female shot at Simla, 30th April 1878, measured:—Length, 17·5; expanse, 40·0; tail, 6·7; wing, 12·5; tarsus, 2·2; bill from gape, 1·4; weight, 1lb. 14oz

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* V. S. F. VII. 165.

Irides deep brown ; cere, gape, orbital space, legs and feet, bright yellow ; bill pale leaden blue, blackish at tips, greenish yellowish at base.

This is the largest bird that I have measured ; males are considerably smaller.

This species or race is constantly smaller sex for sex than *perigrinator* ; it invariably has the whole head, nape, cheek stripes, cheeks and sides of the head black, forming one unbroken black cap, which is rarely, if ever, the case in *perigrinator*, and it has the whole upper parts a much lighter paler slaty blue, (recalling that of *Falco chiquera*) than is ever seen in *perigrinator*.

The upper parts are closely and conspicuously barred as in the peregrine, with dusky slaty, differing in this respect from adult *perigrinator*, which has these bars feebly marked, almost wanting in some specimens. Beneath it is never so rufous, as *perigrinator* almost always is, and it has the thigh-coverts and under wing-coverts closely though narrowly barred, while in the old *perigrinator* these are nearly uniform. The bars on the inner webs of the primaries are narrow and close as in *perigrinator*, and in this respect it differs conspicuously from *peregrinus*.

Jerdon, Verreaux, Gurney, all considered this a good species. It is at any rate a very distinct race, confined apparently to the central section of the Himalayas. I have obtained now several in the neighbourhood of Simla, and I doubt whether the female bird, whose description I quoted from Captain Cock at p. 61 of "Rough Notes," really belonged to this species. I have not the bird to refer to, and at that time I may have been misled as I had then only seen one or two of this present species or race.—*Hume, "Rough Notes."*

10*bis*.—Hierofalco hendersoni, *Hume*.

The best description that can be given of the general appearance of the upper surface is, that it resembles that of a female Kestrel. Below the adult bird is almost spotless, except on the flanks ; the cheek stripe is very long and narrow ; the bill short, with a slight festoon and a rather blunt tooth ; the tarsus and toes short, the former feathered in front for three-fifths of its length, the claws comparatively short and singularly blunt for a Falcon.

Male.—Length, 20 inches ; wing, 14 ; tail from vent, 7·5 ; tarsus, 2·15, feathered for 1·3 inch ; bill at front, straight from edge of cere to point, 0·84 ; from gape, 1·36.

The *cere* and *feet* appear to have been bright yellow ; the claws black ; the bill pale blue, darker towards the tip, and faintly tinged with yellowish at the junction with the cere at the gape, and at the base of the lower mandible.

Lores white, with a narrow dark streak running along the lower margin of the orbits ; forehead rufescent white ; the feathers dark shafted, and the posterior ones blending with those of the crown and occiput, which are dark brown, broadly margined with bright rufous. Immediately above the eye is an indistinct narrow whitish supercilium, the feathers of which are dark-shafted. Beyond the eye this supercilium is continued as a broad, ill-defined, bright rufous band round the nape, the feathers of which are narrowly dark shafted; the feathers of the posterior halves of the sides, and also of the back of the neck, bright rufous and dark brown, the centres of the feathers being brown, and the margins rufous ; upper back, scapulars, coverts, tertiaries, and secondaries, brown, dark on the interscapulary region and lesser coverts, paler and greyer elsewhere, and all broadly barred with bright rufous ; lower back and rump ashy, with broad bars of pale rufous ; upper tail-coverts similar, but browner, and the pale rufous more or less replaced by fulvous white ; tail-feathers ashy brown, tipped whitish or rufous, and with ten or eleven broad regular transverse bars of dull rufous ; cheeks dull rufescent white ; ear-coverts mingled rufous and dark brown. A rather long, very narrow, dark brown cheek stripe, from the gape, running down either side of the throat ; chin, throat, breast, abdomen, vent, and lower tail-coverts white, faintly tinged with rufous cream colour on the breast and abdomen, with dark brown points to a few of the feathers of the sides of the breast, and with a few brown drop-like spots on the abdomen and lower tail-coverts ; sides and flanks rufescent white, with broad dark brown transverse bars; primaries, brown on the outer webs and at the tips ; the first quill narrowly margined on its outer web with bright rufous, and the rest with imperfect bars of the same colour on their basal halves ; the inner webs above the tips are white, becoming rufescent towards the shafts, from which numerous imperfect tooth-like brown bars project over somewhat less than half the breadth of the web ; the first quill is strongly notched on its inner web about 2¼ inches from the tip ; the second and third are similarly, but much less perceptibly notched ; the second quill is perceptibly emarginate on the outer web.—*Hume*, "*Lahore to Yarkand.*"

12.—Falco babylonicus, *Gurney*.

Young Male.—Length, 16 inches; expanse, 38 inches; weight, 12 ozs.; wing, 11·87 inches; the second primary the longest; tail of 12 feathers; length from vent, 6 inches; tarsus, (feathered for 0·5 inches, in front), 1·87 inches; bill, straight, 1·06; along curve, 1·25; from gape, 1·19; width at gape, 1·19.

Legs and feet bright yellow, whitish at the joints of the reticulated scales of the tarsus; claws horn black; middle toe very slender and elongated; irides dark brown; edges of the lids greenish yellow, with tiny dark lashes; membrane of the orbits pale greenish.

Cere pale sea-green, with only a tinge of yellow on the ridge; bill pale bluish green; points and culmen horny bluish black.

Plumage.—Forehead buffy white; feathers dark shafted; line over the eye continued round the back of the head, whitish or fulvous white; feathers dark shafted; whole crown of the head brown, a few feathers in centre, towards the front, very broadly margined, the rest very narrowly margined, with fulvous or buffy white; the nape below the white stripe darkish brown, in the centre, the feathers margined with buffy white, and with a patch of white on either side, the feathers of which have dark spots towards the tips. The whole of the rest of the back of the neck, upper back, scapulars, and wing-coverts a nearly uniform brown, with a faint tinge of slaty, and all the feathers tipped and margined with fulvous white, very narrowly towards the head, and more broadly towards the points of the scapulars; the hue of the back of the neck is slightly darker; the quills are much the same colour, but somewhat more bluish; all the quills have a number of incomplete bars, or oval spots, of rufous white on the inner web; the last five primaries, the secondaries, and the tertiaries have each two or three tiny rufous white spots, on the outer webs also; and the greater coverts of the secondaries and tertiaries have similar small inconspicuous spots on both webs, and all the secondaries and tertiaries, and the last few primaries, are narrowly tipped with buffy white. The rump and lower back are a somewhat paler and more sandy brown, margined with pale rufous; the upper tail-coverts are a still more sandy brown, tipped and margined with dingy white, and with one or more incomplete bars of fulvous white. The tail feathers are brown, paler and sandier on the centre feathers, and darker and more slaty on the outer feathers, all narrowly tipped with dirty white, and all with six or seven ¼-inch broad transverse

bars on both webs, fulvous white on the centre feathers, and rufous white on the exterior feathers; these bars are scarcely visible on the outer web of the exterior feathers. Chin and upper part of throat pure white, a dark brown cheek stripe from under the eye, margined with pale rufous; ear-coverts mingled pale brown and rufous white; hinder portion of the cheeks white, some of the feathers tinged pale rufous; an ill-defined brown stripe (the feathers slightly tinged with fulvous white) running backwards from the posterior angle of the eye, and dividing the white of the hind cheeks from the white of the sides of the nape; the lower throat and upper portion of the breast fulvous white, each feather dark shafted, and with a narrow somewhat pear-shaped streak of dark brown towards the tip; the rest of the breast, sides, and upper abdomen fulvous white, each feather with a well-marked central stripe of brown, narrowest in front, broadest towards the sides; lower abdomen and vent white, slightly tinged with fulvous, a few of the feathers dark shafted. Lower tail-coverts, (which do not reach within two inches of the end of the tail) white, with two or three transverse, somewhat wavy, bars of pale brown; interior thigh-coverts white; exterior thigh-coverts white, tinged with fulvous, each feather dark shafted, and with a central lanceolate stripe of brown; under surface of tail and quills greyish brown, the bars above-mentioned showing through; the lower wing-coverts, all reddish brown, conspicuously margined at the tip, and the longer ones barred, with somewhat fulvous white.

Adult female.—Dimensions.—Length, 17·25; expanse, 41; tail from vent, 7·25; foot, greatest length, 4·5; greatest width, 4; wing, 13; wings, when closed, reach to within 1·87 of end of tail; tarsus, 1·75; mid toe to root of claw, 1·9; weight, 1·87 lbs.

The irides deep brown; the cere, gape and orbital skin, as well as the legs and feet, bright yellow; the claws black, and the corneous portion of the bill blue, changing to horny black at the tip; the forehead and the centre of the top of the head sandy rufous, each feather with a dark brown shaft; the sides of the top and the back of the head a somewhat ashy or slaty brown, the feathers more or less margined with sandy rufous. A broad rufous half collar running round the back of the neck, a little mottled behind the ear-coverts, and again in the centre of the back of the neck, with dusky slaty. The whole mantle slaty grey, dark and dusky towards the base of the neck, and paling towards the rump and upper tail-coverts. Most, if not all, of the feathers narrowly margined paler, those towards the nape with rufous,

and those lower down with greyish white. Most of the feathers also somewhat conspicuously darker shafted, and *all* exhibiting broad, transverse, somewhat ill-defined, dusky slaty bands. The rump and upper tail-coverts pale slaty or French grey, with brown shafts, and transverse arrow head dusky bars. The tail-feathers pale slaty grey, tipped with rufous, and with numerous broad, transverse, well defined, slaty brown bars, broadest towards the tips. A blackish line under the eye, continued downwards for about an inch and a quarter, as a narrow cheek stripe; the two cheek stripes nearly meeting on the throat, about an inch and a half below the base of the lower mandible; the whole of the lower parts, a rich rufous salmon colour, somewhat paler on the chin and centre of the throat, and deeper on the ear-coverts, sides of the neck, and centre of the abdomen; the breast, chin, and throat perfectly spotless; the abdomen, flanks, lower tail-coverts and tibial plumes regularly, but rather widely, barred with slaty brown; the bars everywhere narrow, being nearly obsolete in the centre of the abdomen, and best marked on the flanks; the under wing-coverts of a pale salmon colour, conspicuously barred with brown.—*Hume*, "*Rough Notes.*"

18.—Cerchneis naumanni, *Fleish.*

Adult Male.—Upper surface of body rich cinnamon-rufous; entire head and hind neck, lower back, rump, upper tail-coverts, and tail blue-grey, the latter tipped with white, and crossed by a broad subterminal band of black; lores and a few streaks on the cheeks whitish; lesser and medium wing-coverts cinnamon-rufous, like the back, a few of the outer ones of the latter series washed with blue-grey; the greater coverts and inner secondaries blue-grey, washed with rufous externally; primaries dark-brown; throat deep fulvous white; breast pale cinnamon or vinous, with a few blackish spots on the breast, becoming larger on the sides of the body; thighs paler rufous, unspotted; abdomen and under tail-coverts yellowish white; under wing-coverts white, with a few tiny black oval spots larger on the axillaries; bill lightish blue, yellow at base, and blackish at tip; cere, orbits, and feet beautiful yellow, the claws generally white, very rarely inclining to blackish; iris dark brown. Total length, 12·5 inches; culmen, 0·75; wing, 9·1; tail, 6; tarsus, 1·2.

Adult Female.—Dissimilar to the male. Above tawny rufous, transversely crossed by bars of blackish brown, narrower and more obscure on the lower back, rump, and upper tail-coverts,

the latter of which are strongly inclined to grey; tail rufous, barred with black, tipped with whitish, before which a broad subterminal band of black; head and neck rather paler rufous, the former broadly, the latter more narrowly, streaked with blackish shaft-stripes; forehead and a distinct eyebrow whitish; cheeks and ear-coverts silvery white, with narrow shaft lines of black; primaries dark brown, barred on the inner web with rufous; secondaries coloured like the back, the outer ones narrowly margined with white at the tip; throat, vent, and under tail-coverts fulvous white, unspotted; breast inclining to rufous-fawn colour; all the feathers mesially streaked with blackish, these stripes being broader on the flanks, and very tiny on the thighs, which are also paler rufous. Total length, 12·5 inches; culmen, 0·7; wing, 9·3; tail, 5·9; tarsus, 1·2.

Young Male.—Like the old female, but somewhat paler rufous. The blue tail is assumed by a moult, the blue head being, on the other hand, gained by a change of feather. Birds in intermediate stages are often thus seen.—*Sharpe's Catalogue.*

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18 *bis.*—Cerchneis pekinensis, *Swinh.*

Adult Male.—Very similar to *C. naumanni*, but darker and more vinous red above; underneath also darker-coloured and unspotted when adult. The principal distinction is in the wing-coverts, which are almost entirely blue-grey, only the very innermost being slightly washed with rufous. Total length, 12 inches; culmen, 0·8; wing, 9·6; tail, 5·8; tarsus, 1·45.—*Sharpe's Catalogue.*

19.—Cerchneis vespertina, *Lin.*

Adult Male.—Above leaden grey, a little paler on the wing-coverts, the greater series of which are conspicuously silvery grey; primary coverts and quills silvery grey; the secondaries darker and approaching the colour of the back; tail brownish black; under surface bluish grey, with faint indications of blackish shaft-stripes; lower abdomen, vent, under tail-coverts, and thighs rich chestnut; under wing-coverts leaden grey; inner lining of wing brownish black; cere, orbits, and feet bright brownish red; claws yellowish white, horn-coloured at points; bill yellowish horn-colour, blackish at tip; iris light

brown. Total length, 11·5 inches; culmen, 0·75; wing, 9·8; tail, 5·6; tarsus, 1·15.

Adult Female.—Different from the male. Above bluish grey, with transverse black bars on all the feathers, the interscapulary region a little darker and more ashy; tail also bluish grey, with narrow black bars, the subterminal one much broader, the tip a little paler grey; quills brownish, externally ashy grey, barred on the inner web with whitish; head, hind neck, and underparts rufous, inclining to buff on the under tail-coverts; forehead whitish; lores and feathers round the eye greyish black; sides of the face and neck, as well as the throat, yellowish white, with faint indications of a pale rufous moustachial streak; soft parts as in the male, but less bright. Total length, 11 inches; culmen, 0·7; wing, 9·7; tail, 5·6; tarsus, 1·15.

Young.—In general colour similar to the adult female, having the tail barred with black; the forepart of the head is whitish; and there is a strong tinge of rufous on the edgings to the interscapulary region, the bases to the feathers being blackish; feathers round the eye and on the upper part of ear-coverts greyish black, with faint indications of a moustachial streak; throat and sides of neck creamy white; under surface rufous, paler than in the old female, and streaked with blackish centres to the feathers, these developing into spots towards the end of the feathers; cere, orbits, and feet reddish yellow; claws yellowish white, with dark grey tips.—*Sharpe's Catalogue.*

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24 *bis.*—Accipiter melaschistus, *Hume.* "Rough Notes," p. 128, February 1869.

The chief distinctive features are its greater size, and the much greater intensity of the colour of the upper plumage, especially in the female.

Adult Female.—Length, 16·5; wing, 10·5; tarsus, 2·35; tail, 8·7.

Young Male.—Length, 15·75; wing, 9·75; tarsus, 2·25; tail, 8·5.

Adult Female.—The head, nape, and upper back *deep* blackish olivaceous brown, with even a tinge of slaty on the head and nape, where there are traces of a white patch owing to the bases of the feathers showing through; the scapulars slightly less deep blackish brown; lower back, rump, and upper tail-coverts somewhat slaty brown; upper wing-coverts and quills hair brown; the secondaries and some of the primaries, with

traces of darker bars on the outer webs; tail greyish brown or brownish slaty, with five broad transverse dark brown bars; the upper bar hidden by the upper tail-coverts; the subterminal bar broadest; a narrow white tipping, most conspicuous on the centre feathers; the lores white, a trace of a whitish streak behind the eye; cheeks rufous white, the feathers with dark brown linear central stripes; the ear-coverts rufous, with dark central stripes, and the longer feathers tipped blackish brown; a black line immediately under the eye running over the ear-coverts, and lost in the dark tips of these; chin and throat rufous white, most rufous towards the sides of the neck, and each feather with a dark shaft, or narrow dark central stripe; the whole of the breast, abdomen, sides, thigh-coverts, axillaries, and lining of the wing white, conspicuously, closely and broadly barred with dark brown; many of the feathers with a rufous tinge towards the tips, and some of them especially in the flanks, with rufous, more or less taking the place of the brown bar; the lower tail-coverts nearest the vent, narrowly barred with paler brown; the longer tail-coverts pure white; a conspicuous patch of rusty or pale chestnut on the sides; inner webs of the primaries strongly barred white, or greyish white, and dark brown; the bars perpendicular, or nearly so to the shaft, and not slanting as in European specimens of *nisus* that I have examined; the whole barring of the under surface is much closer and more conspicuous than in any of the specimens of *nisus* from Europe, with which I have compared it; the bars being in one quite as broad, and in the other *nearly* as broad as the white interspaces. The feet are larger; the hind toe and claw, and inner toe and claw, conspicuously so.

Young Male.—Irides bright yellow; legs and feet dingy yellow; upper plumage umber brown, edged rufous and centered darker (almost black) on head and nape; upper tail-coverts (a trifle paler than the back,) dark shafted; tail a drab brown, narrowly white tipped, with five moderately broad dark brown transverse bars; on both webs of all the feathers, except the outer webs of the external laterals, where they are indistinct, though *not* altogether *wanting*, one of the five bars being high up and hidden by the upper tail-coverts; forehead whitish, a conspicuous yellowish white band; feathers brown shafted, running backwards from top of the eye over ear-coverts, fully one inch long; lores dingy white, a trace of dark line through them to the eye-line under the eye, and terminal halves of ear-coverts reddish or umber brown; rest of ear-coverts, whole chin, throat and sides of neck pale fulvous, with conspicuous, very narrow, central stripes to feathers; breast and upper abdomen pale buffy, with numerous conspicuous narrow transverse arrow-

head bars; the central portion of the bar bright rufous, the lateral portions dark brown; these bars are much the *shape* that Sea-gulls are often represented in pictures, the head and body portion of the bar (if I may so express myself), being rufous and the wings dark brown; the sides are very rufous; the lower abdomen and tibial plumes are buffy white, with still narrower transverse arrow-head brown bars; the lower tail-coverts yellowish white, each faintly tipped rufous.—*Hume "Rough Notes."*

27.—Aquila mogilnik, *S. G. Gm.*

Dimensions.—*Males.*—Length, 28·5 to 30·5; expanse, 69·0 to 76·0; wing, 20·75 to 23·0; tail from vent, 10·5 to 12·5; tarsus, 3·38 to 4·0; bill from gape, 2·13 to 2·63; weight, 4·0 to 5·5 lbs.

Females.—Length, 30·0 to 32·63; expanse, 70·0 to 85·0; wing, 23·0 to 24·5; tail from vent, 12·0 to 14·0; tarsus, 3·75 to 4·06; bill from gape, 2·75 to 3·13; weight, 6·25 to 8·75 lbs.

This bird has two well-marked stages of plumage.

1*st.*—The general character of this stage is *lineated.* The under parts with broader or narrower pale centres to the feathers, and the upper parts with pale central stripes. What I take to be the earliest form of this stage has the head and nape brown; the feathers tipped and margined with pale yellowish brown; the upper back, scapulars and lesser wing-coverts darker brown, most of them showing faint traces of paler centres and tips; and some faintly margined slightly paler.

The lower back is buffy; a patch on the rump being mottled with brown; the upper tail-coverts fulvous white; the tail feathers pale wood brown, much abraded with dirty fulvous tips, and showing, towards the bases, traces of a mottled, paler and darker barring. The primary quills are dark brown, almost black; the secondaries and tertiaries paler and dingier brown, with a mere trace of a fulvous white tipping, but the tertiaries are a good deal mottled with fulvous white; the median and greater wing-coverts are here and there tipped with fulvous white, but many are not so; the chin, throat, sides of the neck, breast and abdomen are pale buffy brown; the feathers margined with darker brown, which latter, however, is very narrow, and almost wanting on most of the throat feathers, while it occupies the greater portion of the feathers on the lower breast and abdomen; the tibial plumes, vent, and lower tail-coverts

are dingy reddish buff; the lesser and median lower wing-coverts are reddish buff, more or less centred with brown, and the greater lower wing-coverts are mingled white and blackish brown. The lineation of the lower surface is more obscure and ill-defined than in what I take to be later forms of this same stage. In the next form of this stage, every feather of the head, nape, and upper back is brown, (a sort hair brown,) darker than in the form above described, with a conspicuous narrow fulvous central stripe. All the wing-coverts and scapulars are tipped with fulvous or fulvous white; the lesser ones, narrowly, in fact with a mere spot at the tip; the larger ones, more broadly; the rump, back, and upper tail-coverts are as above described; but the tail is a dingy wood brown, without any trace of bars, and broadly tipped with fulvous white.

The secondaries are conspicuously tipped with white or fulvous white; the chin, throat, and ear-coverts are unstreaked fulvous; the breast and upper two-thirds of the abdomen are a warm, somewhat purplish, brown, with conspicuous, well defined narrow central fulvous stripes; the lesser and median lower wing-coverts are more mingled with brown than in the specimen above described; and the larger lower coverts are greyish white, mottled with blackish brown; and the axillaries, which in the form first described, were reddish buff, mottled with brown, are in this one similar to the feathers of the breast. In another form of this stage, the head and back resemble the form first described; the tail and wings, the second; while the chin, throat and ear-coverts are very pale buff, and the breast and abdomen are of the same colour, each feather narrowly margined with the warm purplish brown.

Specimens in this stage vary greatly, independent of the points noted above; in the colour of the thighs, vent, and lower tail-coverts, (which in some are nearly white, in others rufous buff,) and in the extent and purity of the white, or fulvous white tipping, to the tail and secondaries. The difficulty is, that these various differences do not go together. If the birds be arranged in a series, with reference to the comparative width of the central stripes of the breast feathers, which width varies, as above noticed, from less than one-fifth to nearly four-fifths of the total width of the feathers; and then turned back upwards, no corresponding progression in the lineation of the upper surface is observable, and in order to obtain a regular series, according to the amount and extent of the lineations of the upper feathers, a totally different arrangement will be necessary. Adopting either of these arrangements, we shall still have no regular progression in the extent or purity of

the white tipping of the tail, or secondaries, or in the colour of the lower abdomen, vent, and leg feathers.

Two birds, whose heads, necks, and upper backs correspond, differ entirely where the lower plumage, or perhaps tail-feathers are concerned, and *vice versâ*. It is clear, therefore, that some birds change first below, others above, some earlier on the heads, and others on the tails, thus rendering the determination of the comparative priority of the various forms doubly difficult.

The adult stage is well known. The whole head, nape, cheeks, ear-coverts, and sides of the neck buff or orange buff; the back, scapulars, (except a few which are pure white) upper tail-coverts, wing-coverts, primaries and secondaries, chin, throat, breast, abdomen, leg feathers, sides, axillaries, and wing-lining deep blackish brown; the lesser wing-coverts margined, and the upper tail-coverts tipped, with fulvous white; the lower tail-coverts white and a good deal of white mottling about the tertiaries, which are a pale brown; the tail grey, with a very broad terminal black band, occupying fully two-fifths of its visible surface, and above this, a number of more or less broad, irregular mottled and imperfect transverse dark brown bands, which sometimes do, and sometimes do not, coincide exactly at the shaft.

This is what I take to be the perfect adult. In less advanced examples of this stage, the forehead, and more or less of the crown, are blackish brown; the feathers of the chin and throat, as well as the upper breast, are margined, more or less broadly, with the same orange buff as the head and nape.

The axillaries and lower wing-coverts are more or less mottled with rufous, the lower tail-coverts with rufous brown; and the ground colour of the tail, above the black tip, is pale yellowish stone colour rather than grey; the upper tail-coverts likewise are paler brown, and more broadly tipped with fulvous white. In this stage, too, the changes are not synchronous—birds most advanced about the head being often least so about the tails; those most advanced on the upper, least so on the under surface, and *vice versâ*.

The amount of white on the scapulars, too, varies greatly. Some have only a single feather, others nearly the whole scapulars white, and I have some specimens, perfect adults, as regards the plumage on every other point, but exhibiting no trace whatsoever of white on the scapulars.—*Hume*, "*Rough Notes.*"

27 *bis.*—Aquila nipalensis, *Hodgs.*

Dimensions much as in *A. mogilnik*.

This species also has two very distinct stages of plumage.

First; the leading character of this first stage is to have two conspicuous white, or fulvous white, wing bands; the whole of the head, neck, chin, throat, back, lesser scapulars, lesser wing-coverts, breast, abdomen, sides, leg feathers, axillaries, wing-lining, except the greater lower wing-coverts, are a nearly uniform brown; the upper tail-coverts are clear, slightly yellowish white; the tail dark brown, more or less conspicuously tipped with fulvous white, and with or without narrow, transverse, irregular, grey bands; the quills and greater wing-coverts are dark brown, the latter with the secondaries and tertiaries broadly tipped with fulvous white; the greater lower wing-coverts are pure white, or white mingled with brown, slightly darker than the rest of the wing-lining.

The specimens in this stage vary greatly in the prevailing shade of brown; some are very pale, almost whity brown, others moderately pale hair brown; some are entirely destitute of bars on the tail, others exhibit them conspicuously; and in the specimens before me the very lightest bird, and one of the darkest, have no bars whatsoever on the tail; the lower tail-coverts, in almost all the specimens, are white, or slightly fulvous white; but in one specimen they are mottled with the same brown as the rest of the lower parts.

In some, the pale tippings to the tail feathers are obsolete, in others, conspicuous; the lesser and median lower wing-coverts, in one or two specimens, are narrowly tipped with white; generally they are of the same uniform brown, as the breast, abdomen, etc. In both these forms, the lower surface of the primaries are but faintly mottled with greyish white.

Some specimens again are met with, changing to the next form; in these the wing bands have nearly disappeared; the tail feathers show the irregular, narrow bars more strongly than in any of the others; the whole of the crown is darker, the pale tipping of the tail is almost obsolete; many of the median lower wing-coverts are rufous buff, and the longer scapulars, and a few of the feathers of the back, are a deep chocolate brown.

The second stage is characteristically of a dark hair, or even at times umber brown, darkest above, and chocolate brown on the scapulars, with no pale bands on the wings or tips to the tail feathers, and with numerous narrow, transverse, irregular grey bars on the latter; and with much brown mingled with the lower tail-coverts.

Some specimens show traces of the wing bars, characteristic of the preceding stage, but the more adult of them show more or less of a reddish buff patch on the nape and pale margins to the lesser wing-coverts.

A good many, which I suppose to be those nearest to the first form, besides showing traces of the wing bars, have all the feathers of the lower abdomen narrowly tipped with dingy fulvous white.

That this is really the adult stage there can be no doubt; but even here the changes are most confusing, because one bird for instance, having a most conspicuous orange buff patch on the nape, has the whole of the upper tail-coverts a clear fulvous white, as in the first stage; while another, though of a deeper brown, shows no trace of buff upon the nape, and has the upper tail-coverts uniform blackish brown, as in the adult.

The wing-lining also varies very much in this stage. In some, and these by no means the most advanced, it is altogether deep brown, as in the perfect adult, while in others, by no means the least advanced, it is a rufous buff, or a rufous buff mingled with dark brown; in one, and that a bird showing the incipient orange buff head, they are precisely as in the second stage; the lesser and median lower wing-coverts being uniform pale hair brown, and the larger lower wing-coverts white.—*Hume*, "*Rough Notes.*"

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28 *bis*.—Aquila fulvescens, *Gray*.

The following is a description of a young, just adult male; older birds assume a much more ruddy ferruginous plumage and are less buffy; as in *A. clanga*, the nostrils are circular:—

Male.—Length, 26·5; expanse, 61·0; weight, in lbs., 3·94; bill, width at gape, 1·69; wing, 19·25; length of tail from vent, 10·63; tarsus, 4·06; bill from gape, 2·28.

Feet pale dingy yellow; claws darkish brown; iris pale yellowish brown; the whole lower mandible and basal half of upper mandible greyish white, with a tinge of blue; tip of upper mandible horny brown; cere and gape pale dingy yellow.

Plumage.—The whole head, throat, neck all round, breast, sides, abdomen, and thigh-coverts, a pure buff; most of the feathers darker shafted, and those of the top of the head conspicuously so; a narrow dusky, ill-defined, supercilium running backwards over and behind the ear-coverts; upper back and scapulars light brown, the longest of the latter only some-

what darker, and all but these broadly margined with fulvous white, and with the margins much abraded; the middle of the back buff, the bases of the feathers white, and showing through; the feathers of the rump light brown, broadly margined with buffy white and white; the upper tail-coverts pure white; the tail brown, paler towards the tips, the margins of which are almost white; the lesser and median coverts light brown, each broadly margined with buff towards the base, and white towards the tip.

The greater coverts, except those of the first three or four primaries, a rather darker brown than the median, margined towards the tips with white, and those of the last three primaries margined with white, the whole way up the outer webs. The first seven primaries blackish brown, but the outer webs above the marginations a redder brown; the last three primaries not only tipped with white, but with a broad white margin all the way up the outer webs; the winglet, the greater coverts of the first three primaries, and the secondaries a rich umber brown, showing, in some lights, a purple gloss; the secondaries narrowly tipped with white; the axillaries, and the whole of the lower lesser wing-coverts and median coverts, except just at the carpal joint, a warmer buff than even the breast, a sort of rufous salmon colour I might almost call it; feathers below the vent and lower tail-coverts a slightly buffy white; longest thigh-coverts and tarsus feathers dirty fulvous, or buffy white.—*Hume*, "*Rough Notes.*"

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39 *bis*.—Spilornis melanotis, *Jerd.*

The Southern Indian Harrier Eagle differs perceptibly from *S. cheela* of Upper India; the wings of the latter vary in the males from 18·5 to nearly 20 inches, and in the females from 19·5 to nearly 21; while in this present species they vary in the males from 17 to barely 18 inches, and in the females from 18 to 18·5 inches; the lower parts also are somewhat less conspicuously ocellated, and the barring on the breast, so conspicuous in adult *cheela*, is almost entirely wanting. Mr. Blanford, to whom I owe one specimen, suggested that this might be *S. spilogaster*, of Blyth, and I myself at one time adopted this view, but Blyth himself identifies this with *S. elgini*, of Tytler, which however he then considered the same as *bacha*, and in none of which the wing exceeds 15 inches. Moreover, Blyth remarks of his species that it has a "less developed crest, and much less of black

upon the crown; the tail markings quite different, having the black subterminal band conspicuously less broad." Now this is in no way applicable to our present species, which, taking the relative sizes of the two into consideration, has quite as fully a developed crest, quite as much black on the crown, and very nearly, if not quite as broad, a subterminal tail band. This species cannot possibly therefore be *S. spilogaster*, and must stand under Jerdon's name. *S. albidus*, Cuvier, which has been suggested as applicable to this species, pretty clearly applies to the northern form, *S. cheela*.—*Hume*, "*Nests and Eggs*."

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42 *bis*.—Haliaetus albicillus, *Lin.*

Immature specimens of this species are most commonly obtained in India; the following are dimensions and description of a pair of immature birds. In the adults the wholly white tail is very conspicuous.

Immature Birds:—

Male.—Length, 32·8; expanse, 86·25; wing, 24·8; tail from vent, 12·5; tarsus, 3·52; bill from gape, 2·6.

Female.—Length, 34·0; expanse, 88·0; wing, 26·0; tail from vent, 13·0; tarsus, 4·2; bill from gape, 3·05.

The fourth primary is the longest; the third is sub-equal; the second is 1·4 shorter; the first 4·5, and the fifth, 0·6 shorter. Exterior tail feathers—male, 1·4, female 2·2, shorter than the central ones.

Description.—*Male*.—The legs and feet were bright orange yellow; the gape and a portion of the cere yellow; the upper portion of the cere yellowish brown; bill blackish horny; the head, nape, cheeks, ear-coverts and sides of the neck hair brown; all the feathers white at their bases; in some for the basal half, in some for fully the basal two-thirds, but very little of the white showing through, the feathers being densely set; all the feathers of these parts long and linear, those of the occiput especially; the back of the neck, the whole of the back and rump, scapulars and wing-coverts, except the greater primary coverts, as well as the feathers of the breast and abdomen a warm buffy fawn colour, changing to white at their bases, and more or less broadly tipped with hair brown; the longer scapulars and the upper tail-coverts, which latter are very broad and come down to within some four half inches of the tip of the tail, a mixture of yellowish and hair brown, mottled and freckled with white and yellowish white; tail, which is

very wedge-shaped, reminding one of that of the Lammergeyer dark brown, mottled all over with dingy yellowish white, which colour predominates on the inner webs; the quills, winglet, and greater primary-coverts chocolate brown; the second to the fifth primaries conspicuously emarginate on the outer web, and with a grey silvery tinge above the emarginations; the first to the fifth primaries conspicuously notched on the inner webs; the chin and throat pale buffy brown; the feathers whitish at the base and darker at the tips; the flanks and thigh-coverts pale yellowish brown, the feathers tipped darker; the lower tail-coverts dingy white, broadly tipped with brown, which, in the longer ones, is a dark hair brown; in the shorter a dull yellowish brown; wing-lining a sort of umber brown; the bases of all the feathers paler, some of them fawn coloured, and some of them white.

Female.—The legs, feet, cere and gape a sort of brownish yellow; the upper mandible and claws blackish horny; the tip of the lower mandible yellowish horny; the whole of the head, nape, sides of the neck, cheeks, chin, and throat pale yellowish brown; the feathers white, tipped with yellowish brown, which, owing to the feathers being closely set, is the predominant colour, especially on the top of the head; the ear-coverts a darker brown; the whole of the back of the neck, back, rump, and upper tail-coverts, breast, sides, abdomen, vent, and lower tail-coverts, white, comparatively narrowly tipped with yellowish brown, and many of the feathers, with a narrow linear ovate, hair brown shaft spot near the tip. As in the male the upper tail-coverts are ovate lanceolate, very broad and long, and reach to within less than six inches of the end of the long wedge-shaped tail, most of the scapulars and the tail-feathers are a mixture of dull dark and pale dingy yellowish brown, everywhere mottled and freckled with dirty white, which occupies almost the whole of the inner webs of the lateral tail-feathers; the wing-coverts, except the greater primary-coverts, are wood brown, showing little or nothing of the white bases; most of the tertiaries are mottled white, and dingy yellowish brown, like the tail; the secondaries are a dull, slightly rufous brown, much mottled on the interior webs with white, and the primaries are dark chocolate brown, greyish above the emarginations; some of the primary greater coverts are dark chocolate brown, and others are a pale rufous brown.

From *leucoryphus* this species differs, first, in the much deeper and far less sinuated upper mandible; second in the tarsus, feathered in front, for from five-eighths to three-fifths of the length; third in the excessively rounded, or in fact wedge-shaped tail; and fourth in the very long and broad upper tail-coverts.

I append full descriptions and measurements taken from Macgillivray :—

"*Male.*—The cere and bill are pale yellow; the iris bright yellow; the tarsi and toes gamboge; the claws black, with a tinge of greyish blue; the plumage of the head, neck, forepart of the back and breast, with the upper wing-coverts greyish yellow; the feathers all greyish brown at the base; of the other parts greyish brown, edged with yellowish grey; the scapulars and feathers of the rump glossed with purple; those of the abdomen, tibia, and subcaudal region inclining to chocolate brown; the quills and alular feathers brownish black, with a tinge of grey; the inner secondaries inclining to greyish brown; the shafts of all white towards the base; the lower surface of the quills, and the large coverts tinged with greyish blue; the upper tail-coverts and the tail are white (generally freckled with dusky grey at the base); the down on the breast is pale grey, that on the sides darker.

"Length to end of tail, 36 inches; extent of wing, 72; bill along the ridge, 3·41; along the edge of lower mandible, 3; its height, 1·41; wing from flexure, 24; tail, 11·5; tarsus, 4.

"*Female.*—The female does not differ from the male in colour, and her superiority in size is often not very remarkable.

"Length to end of tail, 40 inches; extent of wings, 80; bill along the ridge, 3·91; along the edge of lower mandible, 3·33; its height, 1·66; wing from flexure, 27·5; tail, 12; tarsus, 4·5.

"*Young.*—The bill is brownish black; the base of the lower mandible yellow; the cere greenish yellow; the feet yellow; the claws black; the bases of all the feathers are brownish white; their middle parts light reddish brown; their tips only blackish brown; the head and nape are dark brown, each feather with a minute brownish white spot on the tip; on the middle of the back and on the wings, light reddish brown is the prevalent colour; the black tips of comparatively small extent; on the third part of the back there is much white, that colour extending farther from the base; the quills and larger wing-coverts are blackish brown, with a tinge of grey; the tail-feathers brownish white in the centre, black towards the margins, with irregular white dots; the lower parts are of the same colour as the back, or are pale reddish brown, marked with longitudinal streaks and spots of dark brown; the lower wing-coverts brown; the tail-coverts white, with light brown tips.

"*Progress towards Maturity.*—In the second year the young exhibits little difference, being however of a darker tint on the back and wings. An individual at this age has the bill brownish black, tinged with blue; its base and the cere greenish yellow; the iris hazel brown; the feet gamboge; the claws

brownish black; the head and nape are dark brown; the base of all the feathers on the upper parts is white; on the hind neck and foreparts of the back that colour, tinged with yellowish brown, prevails, a lanceolate or obovate deep brown spot being on each feather towards the end; on the middle of the back the brown prevails, on the hind part white, and the rump and upper tail-coverts are light brown, tipped with darker; the scapulars are dark brown, with a purplish tinge; the wing-coverts dark brown at the end, but most of the larger pale brown in the greater part of their extent; the quills black, with a purplish grey tinge; the secondaries gradually becoming more brown, and all faintly variegated with light grey and brown on the inner webs; the tail is brownish black, with a tinge of grey, and more or less finely mottled with whitish; the lower parts may be described as brownish white, longitudinally streaked with dark brown, there being a lanceolate patch of the latter on each feather; the lower wing-coverts and feathers of the legs dark brown; the lower surface of the quills bluish grey; the lower tail-coverts white, tipped with brown; the down on the breast pure white.

"*Remarks.*—In this species the bill and iris change from dusky brown to pale yellow, and the plumage at first white at the base, and dark brown at the end, gradually loses its white, while the dark parts become paler and more extended, the final colouring being more uniform.

"The tail forms no exception, for its basal white also diminishes; but the white, which is gradually substituted for the brownish black, spreads from near the end to the base."—*Hume*, "*Rough Notes.*"

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56 *quat.*—Milvus migrans, *Bodd.*

Adult Male.—Crown, sides of the head, and nape white; the forehead narrowly, and the other parts broadly, striped with blackish brown; upper parts dark hair brown, with a metallic gloss on the back; the feathers on the hind neck with dark central stripes; those of the wing-coverts and a few of the scapulars with lighter edges; primaries black, excepting some of the inner ones, which are deep brown; secondaries blackish brown; the inner ones assimilating in colour to the back; tail like the back, but slightly duller and a trifle grey in tinge, and with scarcely perceptible darker bars, being also but slightly forked; throat dull white, striped with blackish brown; breast clove-brown with blackish stripes; rest of the under parts

deep ferruginous, each feather with a dark shaft-line; under wing-coverts rufous, varied with deep brown; bill blackish horn, yellowish at the base of the lower mandible; cere pale yellow; iris greyish, with a yellow tinge surrounded by a black line; legs pale yellow; claws black. Total length about 2½ inches; culmen, 1·6; wing, 17·0; tail, 11·2; tarsus, 2·25.

Female.—Resembles the male, but is somewhat larger in size, rather darker and a trifle more rufous in general coloration.

Young.—Upper parts of a much duller brown than the adult; the feathers tipped with yellowish white, which gives it a very spotted appearance; crown and nape with these terminal spots much larger, so as almost to hide the rest of the feathers; throat brownish white, the feathers with dark shafts; rest of the underparts dull dark brown, becoming dull reddish brown on the abdomen, every feather with the terminal portion, except on the edge, dull honey-colour, which gives the under parts the appearance of being marked with elongated oval spots of this latter colour; quills and tail as in the adult; but the latter is tipped with dull brownish white, and the bars are more conspicuous.—*Dresser, "Birds of Europe."*

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68 *bis*.—Nyctea scandiaca, *Lin.*

Adult Male.—Absolutely snowy white above and below, with only a few remains of longitudinal brown spots on the hinder part of the crown and on the wing-coverts, the quills with also a few remains of bars; tail pure white, with a small brown spot remaining near the tip of the centre feathers; bill and claws blackish horn-colour; iris deep yellow. Total length, 23 inches; wing, 16·7; tail, 9·6; tarsus about 2·1.

Female.—Total length, 26 inches; wing, 18·3; tail, 10; tarsus about 2·5.

Immature Male in second year's Plumage.—General colour above pure white; the head almost immaculate, and only showing one or two dusky brown markings; the hind neck with a larger number of brown barred feathers; back and wing-coverts transversely barred with pale dusky brown, less distinctly characterized on the primary and outermost greater coverts; quills pure white, with a few more or less distinct spots of pale brown on the outer web; the inner web of the longest primaries having also some brown bars near the tip of the inner webs; the innermost secondaries obscurely clouded with pale brown; the cross bars very indistinct on all of these;

lower back, rump, and upper tail-coverts pure white, with here and there remains of pale brown cross markings, more distinct on the tail-coverts ; tail itself pure white, the two outer feathers on each side unspotted, the rest having three rows of brown markings near the tips ; forehead and entire face and throat pure unspotted white ; rest of under surface of body white, narrowly barred with dusky brown, these bars narrowing on the lower parts of the body, and being absent on the under tail-coverts and leg feathers, the plumes on the latter completely hiding the entire foot and even the nails ; under wing-coverts pure white, as is also the inner lining of the quills, with the exception of a few dusky brown spots near the tips. Total length, 20·5 inches ; wing, 16·7 ; tail, 9·1 ; tarsus about 2·35.

The young birds are strongly barred, and these bars disappear as the individuals advance in age. The females seem never to get as free from transverse markings as the males ; or, at all events, if they ever become pure white, they take a longer time to lose the barred plumage ; and in numerous other families of birds this is also known to be the case.—*Sharpe's Catalogue.*

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68 *ter.*—Bubo ignavus, *Forst.*

Adult Male.—General colour, above blackish, mottled and varied with yellowish tawny colour ; head blackish, the tawny vermiculations being confined to the terminal margins and a few lateral bars on each side of the feather, so that the centre of the latter remains blackish ; ear-tufts black, 3·2 inches long, excepting near the basal half of the inner web of the interior plumes, which are tawny buff, with narrow blackish vermiculations ; nape and hind neck much paler than the crown, the feathers being for the most part tawny buff, with broad black centres, from which spring on each side narrow black transvermiculating lines ; back again darker, the feathers being mostly black ; the half concealed bases tawny buff, vermiculated and irrorated coarsely with black ; scapulars whitish externally or fulvous, sparingly transvermiculated with black, and forming an indistinct shoulder-patch ; wing-coverts blackish ; the least series very slightly varied with tawny buff ; the median and greater series more frequently mottled with this character, the latter whitish at tip, with narrow irregular cross lines of black, forming an indistinct bar across the wing ; primary coverts blackish, only slightly mottled with fulvous near the base of the outer web ; quills dark brown, regularly barred

with tawny buff; all the bars very minutely dotted with black on the outer web; the inner web for the most part tawny, most irregularly mottled with wavy lines, dots, and markings of black; the secondaries not so distinctly barred with tawny buff; all the lighter spots on the outer web obscured by minute spots and markings of dark brown; the inner webs much more plainly barred with tawny; none of these bars, however, being without brown vermiculations; the innermost secondaries blackish, mottled with fulvous all over; the tip whitish, as also of the secondaries; lower back, rump and upper tail-coverts more tawny than the back, the former coarsely barred, and the latter vermiculated with blackish, especially on the tail-coverts, which are whitish at tip; tail brown, the centre feathers vermiculated all round the margins with fulvous, and having three or four irregularly indicated bands, consisting of a few whitish spots of irregular shape; all the other feathers more or less distinctly barred with deep-tawny buff; the inner webs for the most part bright tawny, with irregular lines of blackish, more thickly distributed towards the tips of the feathers, which are here thickly, though minutely, spotted with brown, as are all the tawny bands on the other webs; lores and feathers in front of and below the eye whitish, with narrow blackish shaft-lines; above the eye a patch of black feathers; sides of face dull tawny, irrorated with narrow circular bars of brown; sides of neck coloured like the hind neck, but less strongly marked; chin pure white, as also the foreneck, separated from each other by a narrow cordon of tawny feathers centered with black, and having small lateral bars of the same; crop covered with tawny buff down, succeeded by a patch of white feathers in the centre of the breast; rest of under surface of body light tawny buff, most of the feathers with a slight glistening of silvery white, all of the chest-feathers very broadly streaked down the centre with black, and likewise laterally spotted or barred with irregular lines of black, these central black streaks much narrower on the breast and abdomen, which are likewise very regularly, though narrowly, barred across with blackish; under tail-coverts deep tawny, barred across with narrow lines of black; leg-feathers deep tawny, with irregular transverse washings of blackish; under wing-coverts tawny, the inner ones whitish, with narrow zig-zag cross lines of black; the lower series brown, tawny at base; inner lining of wing dull brown, barred with tawny buff on inner webs, most of the quills entirely tawny buff at base of the latter, more or less minutely speckled with brown; bill and claws blackish horn-colour; iris rich orange. Total length, 26 inches; wing, 18·6; tail, 11·2; tarsus, 3·2.

Young Female in first year's Plumage.—Very similar to the adults, and presenting few appreciable differences; many of the feathers of the upper surface glossed with silvery white, the light mottlings being larger on many of the dorsal feathers; middle tail-feathers more coarsely and distinctly mottled with whitish, affording indications of five ill-defined bars; upper wing-coverts much blacker than in the adults, with fewer transverse vermiculations. Total length, 27 inches; wing, 19·4; tail, 11·5; tarsus, 3·2.

Observations.—The descriptions are taken from Swedish specimens, carefully sexed and dated, and specimens from the same country show very little differences. On the other hand, two examples from Archangel are much blacker on the upper surface generally, the head and neck very bright orange buff, with the usual broad black mesial streaks; the under surface of the body is also much paler.—*Sharpe's Catalogue.*

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68 *quat.*—Bubo turcomanus, *Eversm.*

Adult.—General colour above pale tawny buff, many of the feathers inclining to whitish; head whitish; the feathers yellowish at base, all rather broadly centered with black, from which dark centres radiate irregular lines and spots of black; nape and hind neck light yellowish buff; many feathers whitish, all with broad black central streaks, the lateral lines or vermiculations very indistinct, in fact almost entirely absent; back blackish brown, yellowish buff at base, and shading off distinctly white in the centre of the feathers; all the lighter parts of the dorsal feathers narrowly waved and minutely barred or spotted with blackish; outer scapulars white on external webs, with only two or three narrow zig-zag bars of blackish; wing-coverts tawny buff, obscured by brownish mottlings, thickly distributed over all the least series and the innermost of the median and greater series; the outermost of the median row uniform brownish black towards the tips, which more or less incline to white, most of the greater series having a large white spot at the tip of the outer web, which has very few and narrow cross lines of black; primary coverts blackish brown, irregularly mottled with yellowish buff on the outer webs; quills for the most part clear tawny buff, almost orange in intensity; the primaries dusky brown at tips; all the quills distinctly barred with darker brown, not quite conterminous; the yellow interspaces with nothing more than a few minute dots of brown; the secondaries more dusky than the primaries, the light inter-

spaces being clouded with coarse brown vermiculations, especially towards the tip; the innermost secondaries very much clouded with brown mottlings, and distinctly barred across with blackish brown; lower back, rump, and upper tail-coverts, with a few indistinct wavy lines of blackish brown, rather more distinct and strongly characterized on the upper tail-coverts; tail yellowish buff, whitish at tip and regularly barred with dark brown, of which about eight bars (some partly broken up) can be distinguished on the outer feathers, the two centre ones more dusky than the rest, and crossed with six or seven bands of dusky brown, often much dissolved and mingled with the interspaces, which are thickly mottled and vermiculated with brown; lores and feathers round the eye white, the former black at the tip of the shafts; just above the eye a patch of black feathers, continued to, and appearing to form part of, the ear-tufts which are 3·2 inches long, and black with tawny bases; the long feathers uniform yellowish buff on the inner web, and barred with black near the base of the outer; ear-coverts dull fulvous, with indistinct brown cross-barrings; chin pure white; the throat encircled by a row of slightly recurved feathers, yellowish buff, streaked down the centre with black, and also laterally barred with narrow lines of the same, exactly resembling the plumes on the sides of the neck, of which this gular band seems a continuation; rest of under surface white, slightly washed here and there with yellowish; the breast feathers broadly streaked down the centre with black, all these feathers slightly varied with lateral vermiculations of brown; the central streaks reduced to a narrow shaft line on the abdominal feathers and flanks, these being, however, finely but regularly barred across with dark brown, disappearing on the under tail-coverts; crop covered with tawny down, succeeded by a patch of pure white feathers in the centre of the breast; leg feathers buffy white, with a few remains of brown zig-zag bars on the outer aspect; under wing-coverts pure white, here and there washed with yellowish, the outermost slightly marked with irregular lines of brown; the axillaries being also crossed with narrow lines of the same; lower series ashy brown, yellowish buff at base, forming a bar across the wing; inner lining of quills for the most part orange buff, with a few distinct brown bars on the inner web, disappearing towards the tip of the quills, which are there dusky brown. Total length, 26 inches; wing, 19; tail, 11·2; tarsus, 3·4.

Observations.—This bird, if not quite specifically distinct from *B. ignavus*, undoubtedly constitutes a well-marked race of that species. It is a very much paler bird both above and below, being especially white on the under surface, the cross barrings

on the abdominal plumes being much fewer and further apart; the legs also are covered with white feathers, which extend further on the foot and cover the junction of the toes and claws; the tail is different also—in *B. ignavus*, the two central feathers being brown, with faintly indicated bands of fulvous vermiculations, whereas in *B. turcomanus* the prevailing colour of these feathers is tawny buff, about eight cross bands of brown being distinguishable, while, instead of the lateral feathers being barred with deep tawny and brown in about equal proportions, as in *B. ignavus*, in *B. turcomanus* these feathers are orange-buff, narrowly crossed with about eight bars of brown. The same differences are seen in the wing, the prevailing colour being orange-buff, in the quill-lining of *B. turcomanus*. In the under wing-coverts there is also a difference; these being barred across in *B. ingnavus* like the breast, whereas in the Siberian Owl they are nearly uniform. The differences in the upper surface of the two birds chiefly consist in the entirely paler colour of *B. turcomanus*, the tawny buff colour predominating.—*Sharpe's Catalogue.*

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74 *B.*—Scops rufipennis, *Sharpe.*

Of the *Scops giu* group, and very closely allied to *S. malayanus*, and resembling it in the dusky grey ear-coverts but distinguished by the absence of the white ocellations on the hind-neck and of the bars on the centre tail-feathers, and more especially by its rufous quills. The following is a description of the type:—

Adult.—General aspect of upper surface more uniform than is usual in species of this genus, being of a dusky greyish brown; the feathers being blackish in the centre, but scarcely to be called streaked, excepting on the forepart of the crown, where the black shafts are very broad and distinct, all the feathers of the upper surface so finely pencilled with dark-brown as to appear almost uniform, with here and there a few sandy-coloured mottlings, more distinct on the head, to which they impart a slightly spotted appearance; the collar on the hind neck very indistinct; some of the feathers being barred with fulvous, and crossed with narrow bars of blackish; on the scapulars the blackish cross lines a little more coarsely defined than on the back, washed with orange-buff, and having the outer web pure white, tipped with black, forming a conspicuous shoulder-patch; wing-coverts greyish like the back, the vermiculations very faint and often obsolete on the greater series,

which have rather large white spots on the outer-web; the median coverts coarsely vermiculated with sandy buff; the feathers with blackish shaft-streaks; the least series rufous with obscure blackish cross-vermiculations; the outermost of the greater series and the primary coverts strongly rufescent, almost chestnut in tone, the latter finely vermiculated with blackish; innermost secondary quills coloured like the back, and finely vermiculated in the same manner, their centres streaked with dusky blackish along the shaft; the rest of the quills rufous, barred with dusky brown, these bars more or less vermiculated; the inner webs almost entirely dusky-brown, barred with pale rufous, inclining to yellowish on the inner web; the rufous bars on the outer web of the primaries inclining to white, and producing a somewhat chequered appearance; upper tail-coverts exactly like the back, the centre tail-feathers likewise strongly resembling the upper surface, inasmuch as they are without any distinct trace of cross bars; the outer feathers dark-brown, vermiculated with sandy rufous, and crossed with seven bars of rufous; the subterminal one very indistinct, and lost in the vermiculations at the tips; the light bars inclining to white on the outer edge of the external webs; loral plumes whitish, the shafts black, and produced into long hair-like bristles; feathers over the eye buffy white, tipped with blackish; sides of face dusky grey, indistinctly varied with fine cross lines of dull brown; behind the ear-coverts a tolerably distinct ruff of orange-buff feathers, broadly tipped with black; this ruff extending across the throat, but the feathers here finely barred with blackish; chin-feathers dull white; chest dull orange-buff, the feathers broadly centred with black and crossed with a few narrow zig-zag lines of brown, and vermiculated with the same at the tips, many of the feathers inclining to white; on the breast and the rest of the lower parts the white predominates, many of the feathers only having a few zig-zag markings of brown, on many of them a strong tinge of rufous with broad black central streaks; some of the flank-feathers slightly washed with grey; under tail-coverts almost entirely white, excepting a narrow-shaped mark of rufous or brown near the tip; leg-feathers buffy white; the tarsus slightly streaked with brown; under wing-coverts fulvous, those near the edge of the wing mottled with brown; the lower series ashy-brown with yellowish white bases; the quills being also ashy-brown below, but inclining to rufous near the tips; the bands being entirely of this colour, and fulvous only near the base of the inner webs. Total length, 8 inches; wing, 5·1; tail, 2·7; tarsus, 0·85.

Hab.—Eastern Ghauts.—*Sharpe's Catalogue.*

74 *ter*.—Scops spilocephalus, *Blyth*.

Dimensions.—Length, 7 to 7·75; expanse, 14·5 to 15; wing, 5·4 to 5·6; fourth and fifth primaries the longest; tail, 2·75; exterior tail feathers, 0·4 shorter than the interior; tarsus, 1·2; bill from gape, 0·68.

Description.—The forehead and a broad stripe over the eye pale rufous white or fawn colour, some of the feathers with a few minute brown spots towards the tip; loral bristles pale fawn colour, more rufous *towards* the tips, and black *at* the tips; feathers under the eye and ear-coverts pale fawn colour, more or less tinged rufous, and freckled and mottled or imperfectly barred with brown; the top of the head, back of the neck, back, scapulars, rump, and upper tail-coverts and lesser wing-coverts, with a more or less dark rufous fawn ground, very finely and closely freckled with dark, in some almost blackish brown, the frecklings becoming confluent towards the tips of all the feathers of the head, and most of the feathers of the lesser wing-coverts, and some of those at the back of the neck producing, especially on the first named parts, a regularly spotted appearance. An irregular, ill-defined broad white or yellowish white half collar at the base of the neck; most of the exterior row of scapulars, with the outer webs, white or yellowish white, and tipped dark brown; the tail rufous fawn, with about seven broad somewhat freckled transverse brown bars, most strongly marked towards the bases of the feathers, and becoming more or less obsolete towards the tips; the quills rufous fawn, broadly barred and clouded with dusky brown, which, above the tips, suffuses the greater portion of the inner webs; the rufous fawn being replaced in three or four of the interspaces of the outer webs of the third to the sixth or seven primaries, by slightly rufous or buffy white; the carpal joint of the wing whitish; the outer webs of the outer feather of the winglet and the tips of some of the secondary greater and median coverts white or faintly buffy white, with broad irregular brown bars; the chin and throat rufous white or pale fawn colour, some of the feathers of the throat with narrow, somewhat irregular transverse brown bars; and all the feathers of the ruff tipped with the same colour; the breast, abdomen and flanks pale rufous white or fawn colour, very thickly freckled and vermiculated with dark brown, most thickly on the breast, somewhat more sparingly so on the abdomen and flanks, the markings becoming confluent in spots towards the tips of some of the feathers; tarsal plumes more or less ferruginous; tibial ditto, rufous white; the whole more or less spotted or obscurely barred with dusky;

the wing-lining and axillaries silky yellowish white, except towards the edge of the wing near the carpal joint, where the feathers are mingled rufous and dusky brown.

The general tone of colouring in some specimen is darker and more rufous, in others paler and more buffy.—*Hume*, "*Rough Notes.*"

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74 *ter A.*—Scops gymnopodus, *Gr.*

Adult (type of species).—Above dull sandy brown, everywhere minutely and almost imperceptibly vermiculated with wavy blackish hair-lines; the hind neck with an indistinct collar of orange-buff feathers, mottled at the tips with the same colouring as the back, and marked with blackish in various manners, sometimes as a subterminal bar, sometimes as a tolerably broad mesial streak; many of the feathers white in the centre; feathers of the crown varied with blackish mesial streaks; the cross vermiculations being also rather coarser than on the back, all with concealed tawny buff bases, but very few with any indications of a subterminal buff bar, so that the general appearance of the head is very uniform; ear-tufts 1-in. long, of the same colour as the head, but appearing rather lighter by reason of the orange-buff bases, showing more plainly and extending for two-thirds of the inner webs; upper scapulars rather more blackish, the lower ones inclining to rufous sandy colour; the vermiculations less distinct and wider apart, the outermost, for the greater part, white, tipped with a bar of black, forming a very conspicuous shoulder-patch; wing-coverts darker brown than the back; the greater and median-coverts paler and rather more rufescent; the vermiculations, as on the lower scapulars, being less distinct; the coverts near the edge of the wing notched with white, the median series with large oval white spots on the outer webs; the greater coverts less distinctly spotted with white near the tips; quill dark-brown on the inner-webs; sandy brown on the outer, with tolerably distinct bars of blackish brown, more or less dissolving into vermiculations; the lighter interspaces becoming notches of white on the outer web of the primaries, and giving a chequered appearance to the external aspect of the wing; the innermost secondaries light sandy buff, coarsely vermiculated with blackish wavy lines; upper tail-coverts rufous sandy colour, with wavy linear vermiculations, as on the back; tail dark brown, barred with sandy buff, the interspaces more or less mottled with the latter colour towards the tips of the feathers,

these, like the extremities of the primaries, being thickly mottled with sandy buff; about seven light bars distinguishable on the tail, those on the outer rectrices inclining to whitish towards the margins of both webs; loral plumes whitish at base, the shafts developing into long hair-like bristles; over the front of the eye a patch of white feathers, each tipped with a terminal bar of blackish; the feathers above the eye with half-concealed white bases, forming an inconspicuous superciliary mark; ear-coverts greyish white, the feathers round the eye deep sandy brown, with narrow little shaft-streaks of fulvous; behind the ear-coverts an indistinct ruff, composed of orange-buff feathers, terminally barred with black; the plumes of the cheeks white, with orange-buff centres and a narrow blackish subterminal line; chin whitish; across the throat a continuation of the facial ruff equally indistinct, the feathers being sandy-coloured at tip, with whitish bases and wavy-cross lines of black; chest sandy buff, the centres of the feathers longitudinally blackish; all the plumes with distinct blackish lateral lines (excepting at the tips, which are minutely vermiculated), and more or less barred with white, this colour gradually extending on the breast and flanks, which are almost entirely white, with blackish or sandy rufous centres to the feathers, all of which are more or less mottled with sandy, and minutely vermiculated with wavy lines near the tips; the under tail-coverts like the belly, but having even less distinct cross vermiculations; thighs and feathered part of tarsus deep sandy buff, with blackish cross lines; under wing-coverts for the most part whitish, with a few blackish cross lines, those near the outer edge of the wing blackish, slightly mottled with fulvous; the lower series ashy-brown, fulvous at base, like the inner lining of the quills, which is ashy brown, notched on the outer and barred on the inner web with fulvous; bill horn-colour, yellowish at base of lower mandible; feet apparently yellow in life. Total length, 6·7 inches; wing, 5·1; tail, 2·5; tarsus, 0·85; the hinder aspect entirely bare, feathered only for 0·45 in front; the bare part being 0·4-inch in length.

Hab.—India.

Observations.—I have given a very careful description of this obscure species, as hitherto it has not been correctly identified by Indian naturalists. Indeed its Indian habitat is by no means certain, as some of Mr. Reeve's birds came from Malacca and China, and it is just possible that it may have had a wrong locality affixed. Were it not for the exact correspondence of the feathering on both tarsi, the species looks like *Scops malayanus* with its tarsal feathers rubbed off.—*Sharpe's Catalogue.*

74 *sex.*—Scops malayanus, *Hay.*

Adult.—Above dark brown, freckled with very minute vermiculations of sandy buff, rather coarser on the scapulars; nearly all the plumes of the upper surface variegated with distinct spots or bars of white, in many cases concealed, but very broad and distinct on the hind part of the neck, where they form a tolerably pronounced collar; outer scapulars largely marked with sandy buff and white, forming a conspicuous shoulder-patch; the white predominating on the lower scapulars, which are broadly tipped with blackish on the outer web; head rather darker than the back, and slightly washed with greyish; most of the plumes blackish in the centre, and spotted on both webs with sandy buff or whitish; ear-tufts orange-buff, vermiculated with brown towards the tips, and carrying generally a subterminal white spot; wing-coverts rather darker than the back, but rather more rufescent; the mottlings very distinctly rufous sandy colour; the uppermost of the median series externally marked with white spots; the spurious quills also notched with white on the outer web; greater coverts slightly shaded with grey, and largely marked with white on the outer web; primary coverts dark brown, barred indistinctly with frecklings of sandy buff; quills brown, externally barred with pale sandy buff, the tips of both primaries and secondaries thickly mottled with yellowish buff towards the tips; the primaries externally notched with white; lower back, rump and upper tail-coverts dark brown, thickly vermiculated with sandy rufous, and varied with half concealed sandy spots; tail dark brown, mottled with sandy-buff vermiculations, especially towards the tips of the feathers, and crossed with five sandy bars on the outer tail-feathers, four on the centre ones; lores whitish, the hair-like elongated shafts blackish at tip; feathers over the front of the eye also white, with narrow blackish tips; feathers round the eye sandy brown, mottled with blackish; ear-coverts greyish white, barred across with brown, and having the appearance of being streaked with the latter colour; behind the ear-coverts an indistinct ruff of orange buff plumes, tipped with black, those on the throat and cheeks white, more narrowly tipped with a line of black; chin white; sides of neck greyish, with very minute blackish vermiculations, and distinctly spotted or barred here and there with white; chest white, the feathers washed with orange-buff and crossed with several zig-zag lines of dark brown, these increasing in number towards the tips of the plumes; all the cross lines disappearing on the rest of the underparts, which are nearly entirely white, some of them showing a dark shaft streak, this

being, however, more apparent on some of the feathers of the chest; under tail-coverts pure white, with only the faintest remains of zig-zag lines at the tips of a few of them; thigh-feathers tawny, gradually shading off into white on the tarsus, and distinctly mottled with dark brown cross lines; under wing-coverts yellowish white, the outermost dark brown, spotted with tawny buff, the lower series ashy brown, yellowish at the base, and thus resembling the inner lining of the quills, which are ashy brown, barred with yellowish on the inner web; the outer web of the primaries notched with buff, and the tips of all mottled with dull sandy colour; bill dull horn-colour; the under mandible yellowish; feet apparently yellowish flesh-colour in life. Total length, 7·5 inches; wing, 5·5; tail, 2·4; tarsus, 1.

Rufous phase.—Above tawny rufous, with very fine (almost indistinguishable) vermiculations; the hind neck mottled with fulvous bars, some of them inclining to white; scapulars externally white, with a blackish terminal bar; some of the greater wing-coverts tipped, and the bastard wing externally notched with white; the vermiculations rather more coarsely vermiculated with blackish; quills sandy rufous, externally barred with brown; the primaries notched with white, giving the wing a chequered appearance; the inner webs brown, notched with fulvous; tail sandy brown, paler at tip, and crossed with five bands of pale rufous; head deeper tawny rufous than the back, more strongly mottled with black; lores and feathers over the forepart of the eye whitish, narrowly tipped with dusky, the lores shaded with rufous; sides of face and ear-coverts greyish, indistinctly barred across with black; chin whitish; sides of neck and chest sandy orange, mottled with brown, and with more or less concealed bars of white; the breast orange, slightly vermiculated and barred with white; the black streaks to the centres of the feathers very broad, less so on the abdomen and flanks; the lower parts of the body being white as in the brown phase; the vermiculations not numerous on the belly and disappearing on the under tail-coverts; bill dusky, yellowish on the under mandible. Total length, 7 inches; wing, 5·35; tail, 2·6; tarsus, 0·95.

Observations.—This is a very well-marked form of the *Scops giu* group, and is by no means so very different in appearance from *S. capensis*; but it is chiefly remarkable for the ocellated appearance of the head and hind neck, the latter having very broad white bars, so as to form a striking contrast to the head and back; the ear-coverts are dusky as in *S. stictonotus*. The character of the under surface is peculiar, and has been well commented on by Lord Walden in his original description:—"The under surface is distinctly divided into two equal portions—the first, including the chin, throat, and breast, being

wood-brown, mottled with a little white, light rufous, and black, irregularly distributed; the lower division, including the belly, vent, thigh-coverts, and under tail-coverts is white, speckled with deep brown and light rufous."—*Sharpe's Catalogue.*

75.—Scops lettia, *Hodgs.*

Two comparatively large species of Scops Owls are found in the Himalayas—the first *E. lettia*, altogether paler and somewhat more rufous in its tint, with toes quite bare or only just overhung at their bases by the feet feathers; and the second *E. plumipes*, altogether a darker and browner bird, with the toes *feathered*, (not *bristled*, as in *carine* in some specimens, half way down the terminal joints, and in all to the end of the *subterminal* one.

In size they do not differ greatly, but *lettia* seems somewhat the bulkier bird, and *plumipes* to have the longest wings and most powerful claws.

Dimensions (of *lettia*.)—Length, 10 to 10·5; expanse, 19 to 20; wing, 6·6 to 7·2; fourth and fifth primaries the longest; tail, 3·2; longest tail feathers exceed shortest, which are the exterior ones, by 0·2; tarsus, which is densely and fully feathered, 1·4 to 1·5; bill straight from edge of cere, 0·6 to 0·7; from gape, 1·0 to 1·05.

Description.—The feet in some greenish horny, in some yellowish fleshy; bill yellowish horny, brown at tip and on side of upper mandible and edge of lower mandible.

Plumage.—The forehead, a broad streak over the eye running down the interior webs of the aigrettes, feathers under the eye and most of the ear-coverts, loral bristles and chin, white, with a greyish or yellowish tinge; most of the feathers tipped, and some imperfectly barred with dark brown; the ear-coverts in most specimens much suffused with rufous, and the longest of them broadly tipped with a deep umber brown, which tippings form a continuation of the ruff band; the whole of the top of the head and back of the neck, and the exterior webs of the aigrettes, back, scapulars, tertiaries, lesser wing-coverts, rump, and upper tail-coverts with a rufous fawn, or in some buffy yellow ground colour, everywhere (except on the outer webs of the outer scapulars, and in a broad irregular half collar at the base of the neck,) very closely and finely freckled, or irregularly barred with minute zig-zag lines of dark brown; many of the feathers, especially of the head and aigrettes, with large deep

brown blotches or irregular stripes or spots towards the tips, confined in the aigrettes to the outer webs; in some specimens these dark brown spots are peculiarly conspicuous on the tips of the comparatively unmarked feathers, which form the irregular half collar already referred to; the outer webs of the quills have the same ground colour, but as usual, palest on the first few primaries, with five or six broad irregular mottled and imperfect transverse brown bars, which are continued as perfect bars on to the inner webs, where the interspaces are much mottled, and instead of having the clear fawn coloured or buffy tint of the outer webs are much suffused with brown, and towards the bases become almost obsolete; the outer webs of the secondaries also have the buffy portions much freckled and mottled with brown; the tail might perhaps be best described as brown, with five or six imperfect and irregular transverse rufous fawn bars; the interspaces much freckled with the same colour, the brown predominating at the bases, the rufous fawn towards the tips; the throat and feathers of the ruff are white, suffused with rufous fawn towards the tips, those of the throat with two or three very narrow transverse brown bars towards the end, and those of the ruff broadly blotched at the tips with deep brown; the breast and the abdomen are white, pale yellowish or rufous white, closely but irregularly barred with delicate, wavy brown lines, and many of the feathers with irregular dark brown shaft stripes or lengthened blotches; the vent feathers and lower tail-coverts are white with, in most specimens, one or more imperfect bars at the tip; the tibial and tarsal plumes are similar, but the former are generally much more rufous, and the latter more purely white than the ground colour of the breast, and the markings always coarser than those of that part are in some specimens, close and regular, in others mere spots.

This species is always paler and more rufous or more buffy than the next (*E. plumipes*), and the dark blotches of the head, back, ruff and lower parts are always smaller and much less conspicuous, but, *inter se*, the specimens of this present species vary good deal in general tone of colouring, some being decidedly browner, some more rufous, and some more buffy.—*Hume*, "*Rough Notes.*"

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75 *bis*.—Scops plumipes, *Hume*.

Dimensions.—Length, 9·5 to 10; expanse, 20; wing, 6·7 to 7·3; tail, 3; exterior tail feathers, 0·2 to 0·4 shorter than the

interior feathers; tarsus, 1·6 to 1·7; bill straight, from edge of cere, 0·6; from gape, 0·92.

Description.—The full description given of *E. lettia* renders it unnecessary to describe this species at length. The toes fully feathered to the base of, or even half way down the terminal joint, alone suffice to separate it from all our other Indian Scops Owls, but I may remark that the general tint of colouring is darker, and as a rule less rufous or buffy, and the dark blotches on the head, back, ruff feathers, breast and abdomen are larger and more conspicuous; the feathers of the throat and front of the ruff are also much more barred. I have never myself seen this bird alive, and therefore cannot give the colour of the irides and other parts which change in the dry specimens, nor can I, not having recorded them myself, *vouch* for the accuracy of those dimensions which cannot be checked from the dry skins, but I have no reason to doubt the correctness of those above recorded.—*Hume, "Rough Notes."*

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75 *ter.*—Scops indicus, *Gm.*

Dimensions.—(The sexes do not appear to differ in size. I have recorded numerous measurements of both males and females, and though the majority of the females are slightly larger than the majority of the males, I have measured males quite as large as any females, and females as small as any males.)

Length, 7·88 to 9·0; expanse, 20·5 to 21·5; wing, 5·6 to 6·75; tail from vent, 2·5 to 3·37; exterior tail feathers about 0·35 shorter than central ones; tarsus, from 1·06 to 1·19; bill, straight from edge of cere, 0·56 to 0·63, from gape, 0·88 to 0·94; weight, 4oz. to 6·25 oz..

Description.—Toes and claws very pale greyish brown, the latter darker at the points and not much curved; soles creamy white; pads and papillæ much developed and soft, scutellation obscure; three or four transverse quasi-scales at the end of each toe; interior ridge of mid claw slightly dilated; irides, in some brownish yellow, in others, dark brown; in one nearly pure yellow; bill, upper mandible, dark brown; lower mandible, paler, especially towards the chin; cere dusky greyish.

A prominent tuft of disunited-webbed, bristly, white feathers (with dark naked tips to the shafts, and traces on those nearest the eye of dark cross bars,) on each side of the upper mandible at its base; a faint tinge of buffy at the anterior angle of the eye; rest of lores, feathers below and behind eye, including ear-coverts loose webbed silky, greyish white, with traces

of faint minute transverse brown bars; chin white; the feathers of the extreme tip somewhat bristly and curving upwards round lower mandible; across the throat and upwards immediately behind the ear orifice, as far as the base of the aigrettes, a band of creamy or pale buff feathers, with numerous minute, transverse wavy brown pencillings and bars; those from the aigrettes to the sides of the throat with conspicuous dark brown tippings, which form the defining line of the disc, and a few of those in the centre of the throat with similarly coloured spots at the tips; forehead and a broad supercilium running up the inside webs of the aigrette feathers, and a curved band at the back of the head, extending from the point of one aigrette to the point of the other (when laid flat on the head,) a silvery grey or greyish white, the feathers with dark brown shafts, and numerous minute, transverse pencillings of that colour, and some of them with terminal spots; centre of forehead and top of head, a triangular space surrounded by this grey band, a rich dark brown; purest on the centre of the forehead, with small twin spots or imperfect transverse bars and mottlings, to a greater or less extent, of pale buff; the outside webs of the aigrettes are similar, as are the feathers of the band outside and contiguous to the curved grey band, which latter seems continuous with the dark line of the outer webs of the aigrette, while the former seems to start immediately above the centre of the eye; below the dark band, at the base of the neck, is another band of very similarly marked feathers, but whereas the dark brown predominates in the former, the buff much predominates in the latter. The back, rump, upper tail-coverts, scapulars, wing-coverts, except the greater ones of the primaries, a mixture of pale brownish grey and pale buffy, with dark brown central streaks, and numerous transverse wavy brown pencillings and mottlings. In the outside line of the scapulars the buff is very pure and in some positions conspicuous, and while the rump, upper tail and lesser wing-coverts are dingier and greyer, the centre of the upper back and the median and secondary wing-coverts shew more of a pale buff; the primary greater coverts are very dark brown, with broad transverse buffy mottled bars; the quills are darkish brown, with numerous broad transverse greyish, more or less dingy, white bars, much more conspicuous on the outer webs; with the exception of a few bars on the upper portion of the outer webs of the earlier primaries, which are unmottled and slightly tinged with creamy, all the rest of these bars are closely mottled and pencilled with brown; the second, third and fourth primaries are just perceptibly emarginate on the outer webs, and the first to the

fourth are conspicuously notched on the inner webs; the sides of the neck behind the dark line, the breast, sides, abdomen, thigh-coverts, a sort of creamy grey, very soft and silky; the feathers with narrow rich brown central streaks and numerous minute irregular wavy transverse pencillings; greater portion of wing-lining, vent feathers, and lower tail-coverts, silky greyish white, the latter, some of them, with dark central streaks towards the tips; tarsus feathers silky greyish white, with a faint buffy tinge towards the joint, and with several narrow, somewhat irregular, transverse, brown bars; tail feathers greyish brown, with imperfect, transverse mottled bars of very pale dingy buff, and with the interspaces, too, more or less mottled with the same colour.

Other specimens answer well to the above description, except that in some specimens the whole of the colours are dingier, while the white of the lower abdomen, vent, lower tail and thigh-coverts is purer; the tarsal plumes in some are entirely unbarred, and generally the markings are less pronounced and clear than in the first described specimen. In most birds (six out of eight of those now before me) the tarsal plumes are entirely unbarred.

Only some specimens shew the silvery half collar on the neck described above; in most the deep brown of the top of the head is continuous down to the broad buffy collar, at most a few feathers on the nape being greyish towards the tips.

On the whole, however, the colouration of specimens from the most distant localities differs but little.—*Hume*, "*Rough Notes.*"

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75 *quat.*—Scops malabaricus, *Jerd.*

Dimensions.—Females (two specimens only, measured in the flesh).—Length, 8·0 to 8·24; expanse, 16·5; wing, 5·95; tail, 2·75; exterior tail-feathers, 0·25 shorter than the central; tarsus, 1·05 to 1·08; bill, straight to edge of cere, 0·43 to 0·5; from gape, 0·8.

Description.—Feet yellow; irides dark yellow; bill yellowish horny, darker above.

Plumage.—The full description of *S. indicus* already given renders any minute description of this species unnecessary.

Generally it may be said that only the point of the forehead and a narrow streak over the eye is white; and these parts instead of being silvery-white, as in *griseus*, are fulvous; again, the chin, throat, ruff feathers, breast, and abdomen, instead of being white or creamy white, as in *griseus*, are a rich

buffy fawn. Altogether the bird is a good deal smaller, and the lower parts conspicuously more buffy than in any specimen of *S. indicus*.—*Hume*, "*Rough Notes*."

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76 *bis*.—Carine glaux, *Savign*.

Adult Female.—General colour pale fawn-brown, mottled all over with white spots, more or less concealed on the back, and plainer on the scapulars and greater wing-coverts, the latter being rather darker brown on their inner webs; primary coverts and quills dark brown, tipped with white and broadly barred on the inner web with white—this bar not extending across the feathers, but represented on the outer web with a white notch, producing a chequered appearance; upper tail-coverts pale fawn brown, rather more rufous than the back, largely spotted with white, which occupies the basal half of the feather; tail pale fawn-colour, tipped with whitish and crossed with four bands of buffy white, continuous near the base, the apical bands however not completely traversing the feather; head rather darker fawn-brown than the back, streaked with white down the centre of the feathers, dilating towards the tip into a distinct white spot; hind neck white, the feathers being mottled with brown, most of the feathers edged and tipped with the latter colour; facial aspect white; the lores with dark brown shaft stripes; the ear-coverts also broadly streaked with brown; cheeks white, continued in a triangular patch to behind the ear-coverts; chin and foreneck pure white, separated from each other by a band of feathers of a pale rufous fawn-colour; rest of under surface of body pure white, broadly streaked with rufous fawn-colour, these streaks becoming narrower on the abdomen and disappearing on the under tail-coverts; leg-feathers entirely white; under wing-coverts white; the inner ones and the axillaries washed with yellowish, the outer ones streaked with brown; the greater series dark brown at base, ashy brown at tip, resembling the inner lining of the wing, which is ashy brown, broadly barred with white on the inner web; bill and irides pale yellow. Total length, 10·5 inches; wing, 7; tail, 3·8; tarsus, 1·25.

Adult Male.—Similar to the female. Total length, 9·5 inches; wing, 6·4; tail, 3·6; tarsus 1·25.

This species is certainly very closely allied to *C. noctua*; and the young appear to be almost indistinguishable from each other. It may be regarded as a desert form of the European bird, with a distinct range, being pale fawn-colour where

C. noctua is dark brown : hence it has a generally pale appearance. On raising the wing, the inner lining in *C. glaux* is very pale, and inclines to ashy brown, the white bars on the inner web very broad and contrasting strongly, the bars on the inner web of the first primary being *four* in number. In *C. noctua* the wing-lining is much darker brown, and only *three* bars are apparent on the inner web of the first primary, all the bars on the inner web being not quite so broad. These differences of wing coloration are really very little more than part of the general pale tone predominant in *C. glaux*, and hardly constitute specific characters. A specimen of *C. noctua* from Greece is so thoroughly intermediate that I am inclined to look upon the two birds as races of one form.—*Sharpe's Catalogue.*

Both this species and *bactriana* have the breast and abdomen streaked, while in *brama* and *pulchra* these parts are barred ; *glaux* has the toes scantily covered with hair, while *bactriana* has them thickly feathered.—A. O. H.

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76 *ter.*—Carine bactriana, *Hutton.*

Adult.—General colour deep fawn-brown; the head streaked with buffy whitish; all the streaks dilating towards their tips, some of which have a subterminal spot; hind neck largely mottled with white; many of the feathers broadly barred across with white; the outer webs of many of them also of the latter colour; interscapulary region tolerably uniform, the white spots being concealed, but very distinct and oval in shape on the scapulars; wing-coverts coloured like the back, and distinctly spotted with white; the spots on the median and greater coverts larger and more oval in form; primary coverts dusky brown, barred across with fawn-colour; quills brown, rather more dusky at tip, barred across with lighter and more rufous brown; the ends of the feathers greyish white; all the rufescent bars shading off into a white spot on the outer web, and giving a chequered appearance to the wing; upper tail-coverts fawn-colour, the bases white; tail pale fawn-colour, tipped with whitish, and crossed with five rather irregular bands of fulvous fawn; lores pure white, as also a small superciliary streak, the former with black shaft lines; ear-coverts fawn-colour, with whitish shaft streaks, the feathers under the eye whitish; cheeks and throat white, extending in a triangular patch backwards below the ear-coverts; lower part of foreneck white, separated from the throat by a band of rufescent feathers mottled with whitish; rest of under surface fawn-buff, inclining to

white on the centre of the body, streaked with rufous brown; the centres to the feathers very broad and distinct on the breast, much narrower on the sides of body, and absent altogether on the lower flanks, vent, and under tail-coverts; leg feathers whitish, light fawn on their outer aspects; under wing-coverts whitish, with a few slight markings of brown here and there, the lower series whitish at base, ashy brown at tip, and thus resembling the inner lining of the quills, which are pale ashy brown, barred with buffy white on the inner web. Total length, 8 inches; wing, 6·1; tail, 3·4; tarsus, 1·15.—*Sharpe's Catalogue.*

For distinctions between this and other congeners, see remarks on preceding species.

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78 *bis.*—Glaucidium castaneonotum, *Bly.*

The following is Mr. Blyth's original description:—"Entire mantle and wings deep chestnut rufous, more or less obscurely barred with subdued dusky; primaries light dusky, faintly barred with rufous on the inner webs, and with a series of spots of bright rufous on the outer webs; tail dusky, with eight or nine narrow white, or whitish bars, the last of these terminal; head and neck closely barred with bright rufescent on a dusky ground, contrasting strongly with the rufous of the back; breast nearly similar, but the colours deeper; abdomen white, with longitudinal dusky streaks; vent and lower tail-coverts pure white; bill pale yellow; irides *red brown?* Wing about 5.—*Hume*, "*Rough Notes.*"

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81 *quat.*—Ninox affinis, *Tytler.*

Dimensions.—Length, 10; expanse, 18·3?; wing, 6·9; tail from vent, 4·4; tarsus (*covered with hair-like feathers,*) 1·0; foot *covered with stiff bristles;* bill from gape, 0·8.

Description.—All the upper surface rufous brown, with the slaty bases of the lax feathers showing through in many places, thus giving it more or less a slaty tinge; on the tail-feathers there are six well-defined blackish bars; the tips of all are brown; the inner webs of the quill feathers are dark; chin albescent; throat, breast and abdomen rufous; breast, abdomen, and flanks striped, that is to say, each feather being albescent at the margins, rufous at the tips, and darker near the shaft, gives the appearance of being streaked; vent and under

tail-coverts pure white; thighs, tarsi and under wing-coverts rufous; toes thickly covered with thick strong bristles, of an albescent brown colour; claws at the base albescent; the rest blackish slate; the inner webs of all the primaries, except the first feather, are faintly barred with dark towards the point half, and with albescent buff towards the basal half, giving the wings from beneath a speckled albescent appearance; the face and a little of the forehead albescent; nostrils and base of upper mandible protected by stiff lax feathers, white, with a black shaft; bill yellowish horny at point, greenish slate towards the base; irides bright yellow.—*Hume*, "*Rough Notes.*"

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99 *ter.*—Cypselus pallidus, *Shelley.*

Adult Male.—Resembles *Cypselus apus*, except that instead of being sooty black it is dull soft mouse-grey; forehead and crown rather paler than the back, the wings and tail being rather darker; chin and upper throat whitish grey; rest of the under parts mouse-grey, darkest on the breast and abdomen, and most of the feathers on these parts are narrowly margined with lighter grey; in front of the eye is a black spot, which is extended to a very slight extent round the edge of the eye; bill black; feet dark purplish brown; iris brown. Total length about 6 inches; culmen, 0·3; gape, 0·65; wing, 6·4; tail, 2·7; tarsus, 0·45.

Female.—Similar to the male.—*Dresser's* "*Birds of Europe.*"

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99 *quat.*—Cypselus pekinensis, *Swinh.*

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

Male.—Length, 7 inches; wing, 7; tail, 3; depth of fork, 1; wing reaching beyond tail, 1·2. Legs deep purplish brown, with black claws; inside of mouth flesh-colour, with a purplish tinge, especially on lower jaw; skin round eye and bill blackish brown, tinged with purple; iris bright brownish black.—*Swinhoe, P. Z. S.*, 1870, 435.

This pale representative of *C. apus*, L., comes to Pekin in large numbers in April (*David*) to breed, and leaves early in August. A bird from the Himalayas, brought home by Dr. Jerdon, agrees with my specimens; and it is probably this species, and not the true *C. apus*, which is found in India in winter.—*Swinhoe, P. Z. S.*, 1871, 345.

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141 *bis*.—Hydrocissa convexa, *Tem.*

In plumage, like *H. albirostris*, but with the four lateral pairs of tail-feathers wholly white; in adults and in the young, these are black at base, and the middle pair tipped with white.

Iris vandyke-brown; naked space round the eyes and sides of throat bluish-white.—*Moore and Horsfield.*

The little casque is wider than it is high, convex on the sides, arched above, but with a very perceptible ridge along the median line; it ends in a perpendicular line, and is there compressed into a knife-like edge; it is whitish posteriorly, and marked with a black band which follows its outline; the point is black; the beak is the same colour as the casque, but the base of the lower mandible, the commissure, and the point of the upper mandible are black; the spaces about the eye and at base of the lower mandible are bare, but they are divided by a narrow band of black feathers.

The general plumage is black; the abdomen, sides, flanks, vent-feathers and lower tail-coverts pure white; the two central tail-feathers entirely black; the rest, together with the terminal portions of most of the quills, pure white.—*Temminck, P. C.* (*corrected.*)

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145 *bis*.—Tockus gingalensis, *Shaw.*

"Its general shape resembles that of most other species" (of Hornbills), "but the bill, which is very large, is not distinguished by any crest or prominence; the colour of the upper part of the head and the back is blackish-brown, with a cast of bluish-grey; the wings are of a fine bluish-grey; the smaller coverts edged with black, marking out that part of the plumage into so many scale-like divisions; the face, fore-part of the neck, breast, belly, and thighs are of a greyish white, growing deeper on the belly and thighs; the tail is longish, the two middle feathers bluish-grey, the rest tipped

pretty deeply with white; the bill is pale or yellowish-white on the sides, but the upper arch of the upper mandible is blackish or dusky; the lower mandible dusky, but whitish or pale beneath; both mandibles are serrated in the usual manner of this genus; the legs are dusky. This species is a native of the Island of Ceylon.—*Shaw.*

The irides are reddish, and when partly hidden by the long stiff black eye-lashes, have a very peculiar appearance.

In some specimens the bill is white, with a black patch extending from the naked space round the eye, about three-fourths of an inch along the lower half of the upper mandible; the bill 3¾ inch long; the three outer tail-feathers are white; the fourth half black from the quill; the fifth black; the head has a rufous tinge.

In other specimens the head wants the rufous tinge; the first tail-feather is white, with the outer shaft black up two-thirds of its length, and slightly tinged up one-third of the inner web; second and third feathers black on both sides up two-thirds of their length; fourth black up to an inch from the tip; fifth black altogether.

Bill, 2½ inch long and black, with a white patch on the upper mandible about 1½ long, beginning about half an inch from the base.—*Layard.*

The colour and shape of the bill in this bird vary a good deal with age.

Bill yellowish, more or less marked with black; irides reddish brown; feet slate grey.—*Holdsworth.*

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151 *bis.*—Palæornis calthropæ, *Layard*, in *Blyth.*

A beautiful species, the representative in the mountainous parts of Ceylon of *P. columboides* of the Nilgiris, to which species it manifests the nearest affinity. Crown and back plumbeous-grey, passing to bluish on the rump, and rich dark indigo-blue on the middle tail-feathers and outer webs of the rest; tail yellow beneath and at the tips, sullied along the inner webs of the rectrices above; forehead and cheeks (passing beyond the eye), broad nuchal ring, and entire under parts brilliant green; wings deeper green, paler and yellowish towards the scapularies; throat intense black, and contrasting, with a tendency to form a ring round the neck, but which does not so much as half surround the neck; upper mandible bright coral, with a white tip; the lower reddish; wing, 5½ inch; tail probably of the usual length, but its medial

feathers in the specimen described appear but half grown. A female or young male is wholly green, more yellowish below, except the rump, which is brighter blue than in the adult male, and the tail is mingled green and indigo-blue; the more vivid green of the neck but obscurely indicated; both the mandibles are dull coral, with white tips; and the wing measures 5¼ inch; the tail but 4½ inch.—*Blyth.*

The colouring in the sexes is alike, except that in the female the green on the side of the head is less distinct, and the bill is black instead of red.—*Holdsworth.*

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153 *bis.*—Loriculus indicus, *Gm.*

Differs from *L. vernalis* in having the crown deep red, passing to a saffron hue on the nape, and in some specimens over much of the back, while the forepart of the neck is tinged more or less deeply with verditer. This appears to be wholly confined to Ceylon.—*Blyth.*

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166 *ter.*—Chrysocolaptes stricklandi, *Layard.*

Length about 11 inches; of closed wing, 5·25; tail, 4·25; bill, 1·75; tarsi, 1.

General colour of back scarlet maroon, each feather being maroon, edged with scarlet; the filamentous feathers on the lower portion of the back near the tail-coverts (which with the tail are brown) are brilliant scarlet; wing primaries of a lighter brown than the tail-feathers; the outer webs margined maroon, changing into scarlet; inner webs of the secondaries marked with four large circular white spots; the interior primaries have but three spots, the middle two spots, the outside of all but one; the feathers of the breast and neck chiefly buff, with an albescent centre and dark-brown edge, giving these portions a scaly appearance, which is lost on the sides and belly, where it merely assumes a mottled irregular form; chin white, with five distinct very dark brown lines down it; head of female brown, with numerous good-sized white ocelli (in the male this portion is brilliant scarlet); the feathers over the nostrils light-brown; a streak of the same colour forms an eyebrow; bill light corneous; legs bluish; irides red-brown.—*Layard.*

The female has the whole top of the head and crest black, spotted with white; and a young bird of that sex had the lower part of the back black, faintly barred with white, with crimson feathers appearing among the others; the bill in this bird was only two-thirds the length of that in the adult.

Layard states that the irides of this species are red-brown; but I think he must have been mistaken, as in four specimens I obtained at Nuwara Eliya, and which I myself prepared, the irides were buff, those of the young bird being rather, paler than the others.

Bill greenish white; irides buff; feet greenish slate.—*Holdsworth.*

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168 *bis.*—Dryocopus martius, *Lin.*

Male.—General colour glossy black, slightly tinged with brown on the forepart of the under surface; quills and tail blackish brown; crown of the head crimson, narrowing into an occipital crest on the nape; bill bluish white, blackish towards the point; feet dark grey; iris light yellow. Total length, 18 inches; culmen, 2·6; wing, 9·0; tail, 7·0; tarsus, 1·3.

Female.—Similar to the male, but somewhat duller in plumage, and inclining to brown. Always to be distinguished by the crimson on the head being confined to a patch on the occiput, and not extending on to the forehead. Total length, 18 inches; culmen, 2·3; wing, 9·2; tail, 7·2; tarsus, 1·3.

The young birds are similar to the adults, excepting that the bill is not so strong, the black not so pure, and the red on the crown of the male not so largely developed, nor so bright as in the old birds.—*Sharpe and Dresser, "Birds of Europe."*

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182 *bis.*—Brachypternus ceylonus, *Forst.*

This bears just the same relationship to *B. aurantius* and *puncticollis* (also inhabiting Ceylon) that *Chrysocolaptes stricklandi* does to *C. delesserti*, being wholly crimson above, but with a black rump (as in other *Brachypterni*).—*Blyth.*

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193 *ter.*—Megalæma zeylonica, *Gm.*

Sexes alike; body green; the head and neck dark earthy brown; the feathers of the neck longitudinally streaked towards

the tip with pale yellowish; the upper back and wing-coverts dark green, with an ochreous tinge, the former narrowly centred and the latter finely tipped with yellowish white; the quills brown; the edge of the inner web and exterior edge of the primaries cream colour; the rest of the upper plumage rich green; entire throat and breast dark brown, shading into a light blue green on the abdomen; the feathers of the breast indistinctly centred with paler brown; tail underneath greenish blue; bill pale brown, with an orange tinge; rictal bristles strongly developed; the feathers of the forehead and chin stiff-shafted, and terminating in bristles; naked skin of the cheek yellow; legs and feet dull yellow; iris brown. Length about 9·5; wing, 4·5; tail rather less than 3 inches.

This Barbet is the Ceylonese representative of the green group which forms such a well-marked sub-division of the genus *Megalæma*. It is most nearly allied to *M. caniceps* of Continental India, and has been frequently united to it; but as a peculiar local distribution is accompanied by a permanent difference in size and depth of colouring, we retain both as good species in the same way as we have retained the Himalayan and Javan species of Lineated Barbet as distinct. It may be distinguished from *M. caniceps* by the dark brown instead of the pale earthy brown head; the generally darker colouring of the neck, throat and breast and the smaller dimensions. In *M. caniceps*, too, the upper back is greyish brown, while in *M. zeylonica* it is green. From Lord Walden's new species, *M. inornata*, it is distinguished by the pale streaks on the breast which are wanting in *M. inornata*, and also by the dark colouring, the latter species being of the two most similar to *M. caniceps*.—*Marshall's "Capitonidæ."*

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196 *ter*.—Megalæma flavifrons, *Cuv.*

Forehead and a spot at the base of the lower mandible bright golden yellow; head and sides of the neck bright green; the shafts of the feathers yellowish white, giving a striped appearance; the rest of the upper parts of the body bright grass green, bluish on the wing-coverts; the upper tail-coverts obscurely margined with brighter green; quills brown, yellow at the base of the inner web; the outer web, especially of the secondaries, broadly margined with grass green; tail deep green above, bluish beneath; ear-coverts, eyebrow, and throat bright verditer blue; rest of the under surface of the body bright green, lighter on the breast, the feathers of which are transversely

scolloped with darker green; bill brownish black, paler at the base of the lower mandible. Total length, 9 inches; of wing, 4·0; tail, 2·75; tarsus, 1·10.—*Marshall's "Capitonidæ."*

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198 *bis*.—Xantholæma rubricapilla, *Brown*.

Sexes alike; body green; forehead and sinciput scarlet; a band across the top of the head black; occiput and nape green, washed with verditer; the rest of the upper plumage dark green, edged with paler green; quills brown, pale yellowish at base of inner webs; exterior web edged with green; lores, a superciliary eye-streak, cheeks, ear-coverts, and throat rich golden yellow, the ear-coverts being tipped with black, forming a continuation of the band across the head; moustachial streak and sides of the neck verditer; a large spot on the upper breast scarlet, edged with yellow; breast light yellowish green, shading into blue green; tail underneath greenish blue; rictal bristles black, fine, and extending beyond the tip of the bill, which is plumbeous black; irides brown; legs and feet olive brown.

The present bird is the most beautiful species of the genus, its nearest ally being *X. malabarica*, which has been obtained in Southern India, and differs from *X. rubricapilla* in having the throat and cheeks scarlet instead of golden yellow.—*Marshall's "Capitonidæ."*

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207 *bis*.—Hierococcyx nisoides, *Bly*.

"There is also in the British Museum the unmounted skin of an adult received from Nipal, which is like *H. sparverioides*, but conspicuously smaller; the wing measuring 7·5 inches. This seems to me to exemplify even another distinct race which I will provisionally call *H. nisoides*. These various Hawk-like Cuckoos have a nestling-plumage which considerably resembles that of *Accipiter*, being equally distinct from that of the *Bhokatako* group, and from that of the group exemplified by *C. canorus*.

"The different races of *Hierococcyx* appear to me to be quite as distinct as are the different admitted species of *Tetraogallus*, *Satyra*, *Phasianus*, or *Perdix cinerea*, *P. barbata*, and *P. hodgsoniæ*, and therefore to have just the same claim to be separately recognized. Of the considerable number of specimens that I have examined, I do not perceive that the different races of Hawk-like Cuckoos run into each other, and therefore I feel some confi-

dence in the opinion that the single specimen which I have called *H. nisoides* denotes a peculiar race, which should be sought for in Butan (as also *Hierax melanoleucus*, *Alcedo grandis*, *Indicator xanthonotus*, and other Sikhim rarities.) There certainly is not that fusion of different races which we observe in the instances of the Indian and Indo-Chinese Rollers and in different specific races of *Gallophasis*.—*Blyth*, "*Ibis*," 1866.

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216 *bis*.—Phœnicophaus pyrrhocephalus, *Pen.*

Its length is sixteen inches; its weight four ounces.

The bill is much arched, strong, and of a greenish yellow colour; the crown of the head and part of the cheeks are of a bright crimson, entirely surrounded by a band of white; the hind part of the head and neck black, marked with small white spots; the foreparts of the neck entirely black.

The back and wings black; the tail very long, composed of feathers of unequal lengths; their lower part black; the ends white.

The breast and belly white; the legs of a pale blue.—*Pennant's* "*Ind. Zool.*"

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217 *ter*.—Centrococcyx chlororhynchus, *Blyth.*

Distinguished from *C. rufipennis* by its much larger bill of a uniform greenish yellow colour, by the darker shade, bordering on maroon, of its back and wings, and by the peculiar hue of the dark head, neck, and under parts, which have a somewhat ruddy tinge, and are glossed with amethystine purple, a redder shine of which is seen likewise to gloss the upper parts; tail purple black. Length about 18 inches, of which the tail measures half; its outermost feathers 9·5 inch less; wing, 6·5 inch; bill to gape, 1·75 inch; and its vertical depth fully ·5 inch; tarsi, 2 inch; and long hind claw, about 1 inch; irides red. A rather local species in the upland territory.—*Blyth*, "*Ibis*," 1867.

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240 *bis*.—Prionochilus pipra, *Less. Cent. Zool. pl.*26.

Although I do not in the least believe in this being either a *Prionochilus* or an inhabitant of Ceylon, yet there being, so far

as I know, no absolute certainty as to what it is or where it came from, I transcribe Blyth's description and remarks:

"Upper parts brownish ashy; the wings and tail brown, with a russet tinge; throat and front of the neck rust coloured; the rest of the lower parts brown, rayed (the feathers tipped in the figure) with whitish; vent and lower tail-coverts russet; axillary tufts brilliant violet; bill and tarsi black; the lower mandible whitish beneath. Length about 4 inches; the closed wing 2·25 inch. Procured by Dr. Reynard in Trincomali. I have not seen this bird, nor was it known to Mr. Layard."—*Blyth*, "*Ibis*," 1867.

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248 *quint.*—Sitta neumayeri, *Michah.*

Adult Male.—Entire upper parts lead blue, rather darker on the forehead; loral space and a broad line passing through and beyond the eye to the nape black; quills bluish brown, slightly edged with russet, as are also the larger wing-coverts; tail blackish brown; the two central feathers being, however, lead blue, the outermost feathers on each side having a russet spot at the tip of the inner webs, and the outer web at the base slightly edged with the same colour; cheeks, throat, auriculars, and entire under parts white, tinged with russet on the abdomen, this tinge being more conspicuous on the flanks and the lower portion of the abdomen; thighs pale russet; under tail-coverts pale russet; each feather having a large central mark of dull bluish grey; bill horn colour; under mandible much lighter at the base and to two-thirds of its length; legs lead grey; iris dark brown. Total length, 5·6 inches; culmen, 0·8; wing, 3; tail, 2; tarsus, 0·9.

Female.—Similar to the male, but generally somewhat larger in size. One obtained by Dr. Krüper in Macedonia, in November 1869, measures 5·4 inches in length; wing, 3·25; tail, 2·1; culmen, 0·95; tarsus, 0·95.

A female from Kokand differs in being much lighter in colour than specimens from Asia Minor; and the stripe behind the eye is larger, extending 1½ inch from the eye; and the secondaries and wing-coverts are indistinctly edged with rufous. In this specimen the culmen measures 1 inch; wing, 3·5; tarsus, 1·05. This, however, is in all probability an unusually large bird, as two others from the same locality measure as follows:—Culmen, 0·95 and 1 inch; wing, 3·3 and 3·5; tail, 2·2 and 2·4; tarsus, 0·98 and 1, one being in general size apparently smaller than the specimen from Macedonia above referred to.

Young.—Differs from the adult in being rather duller in colour.—*Dresser*, "*Birds of Europe.*"

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257 *bis.*—Lanius caniceps, *Blyth.*

It is curious how often *Lanius caniceps*, *erythronotus*, and *tephronotus* are confounded, yet they are really very distinct, as the subjoined comparative table will show :—

	Frontal band.	General colour of upper parts.	Extent of rufous on upper surface.	Colour of tail-feathers.
L. erythronotus.	From 0·1 to 0·3 inch in width.	Somewhat pale ashy grey.	Whole lower back, rump, upper tail-coverts and longer scapulars.	Central tail-feathers black, or blackish brown; laterals brown, with a grey tint.
L. caniceps.	Ditto.	Ditto.	Rump and upper tail-coverts only.	Ditto.
L. tephronotus.	Almost entirely wanting.	Somewhat dark ashy brown.	Ditto.	Central tail-feathers deep rufous brown; laterals growing paler as they recede from the centre, all rufous brown.

Besides this, *caniceps* has the middle portion of the abdomen right down to the vent white, while in *erythronotus* the lower portion of the abdomen, and the feathers above the vent are bright ferruginous.—*Hume*, *J. A. S. B.*, 1871, 117.

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281 *bis.*—Buchanga leucopygialis, *Bly.*

Similar to *cærulescens* but smaller; the tip of the upper mandible (it would seem constantly) more produced; and the white confined to the lower tail-coverts; the abdominal region being merely somewhat paler than the breast. Length of wing, 5·37 inches. This appears to be a common species in Ceylon.—*Blyth.*

Sharpe thus describes this species, and a supposed different sub-species (*insularis*), which I do not consider distinct :—

B. insularis—Adult Male.—Similar to *B. cærulescens*, but much smaller and darker, especially on the throat and chest, which are slaty brown, with a distinct gloss of steel blue; "bill and legs black, the edges of the scales on the latter

greyish; iris reddish brown." (*Legge, M. S.*). Total length, 9 inches; culmen, 0·95; wing, 4·6; tail, 3·7; to tip of outer feather, 4·5; tarsus 0·75.

B. leucopygialis.

Very similar to *B. insularis*, if indeed, really separable, the only differences being that the entire abdomen is brownish, only slightly mixed with white, the under tail-coverts being white; this gives a darker appearance to the bird underneath. "Bill and feet black; iris brown."—*(Legge, M. S.)*. Total length, 9 inches; culmen, 0·85; wing, 4·7; tail, 3·5; to tip of outer feather, 4·5; tarsus, 1·7.—*Sharpe's Catalogue.*

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293 *quat.*—Dissemuroides lophorinus, *Vieill.*

This well marked species would seem to be a common bird in Ceylon. It much resembles the ordinary sub-crested *Dissemurus* of the Malayan Peninsula, except that its tail is formed as in *D. macrocercus*, the caudal feathers being, however, somewhat broader. Three specimens are quite similar. Length of wing, 5·37 inches; of middle tail-feathers, 5 inches; the outermost, 1·5 to 1·75 inch more; bill to gape, 1·75; and tarsi 1 inch. The form of bill and plumage is as in *D. malabaricus*, the frontal crest being rather more developed than in the next species.

This is in fact a *Dissemurus*, with the outermost tail-feathers not prolonged as in that series of birds.—*Blyth.*

Adult Female.—General colour above black, with a metallic green shade, rather more purplish on the head and on the neck-hackles; wings metallic steel green, the inner secondaries also; the rest of the quills black, glossed externally with steel green, the primaries only at the base; tail feather black, glossed with steel green on the outer webs; forehead crested; the plumes deep black, as also those of the lores and sides of the face; under surface of body black, glossed with steel green, uniformly distributed on the abdomen, but rather more metallic on the breast, where it is chiefly confined to the tips of the breast feathers, producing a slightly spangled appearance; under wing-coverts black, glossed with metallic green, like the breast; "bill and legs black; iris dull brownish red."—(*Legge.*) Total length, 12·3; culmen, 1·25; wing, 5·6; tail, 5·2; to tip of outer feather, 7·2; tarsus, 0·95.

Adult Male.—Similar to the female, but a little larger. Captain Legge says that the wing of a male bird, shot with the female above described, measured 6 inches in length.

Hab.—Ceylon.—*Sharpe's Catalogue.*

318 *bis*.—Siphia minuta, *Hume*.

Dimensions.—Length, 4; wing, 2·2; tail, 1·77; tarsus, 0·7; mid toe and claw, 0·56; hind toe and claw, 0·5; bill at front, 0·25.

Description.—Bill blackish brown, fleshy on lower surface of lower mandible; legs and feet very pale fleshy brown. *Plumage*: Upper surface a very rich olive-brown, slightly tinged with rufous on the back, more conspicuously so on the rump; tail dull rufous; quills hair-brown, narrowly margined with dull rufous; chin, upper part of throat, wing-lining, flanks, and lower tail-coverts pure pale buff; lower portion of throat, and lower portion of abdomen and vent white; sides of neck, breast and upper abdomen pale dingy brownish fulvous.

This species closely resembles both *Siphia tricolor* and the female of *Siphia leucomelanura*, but is decidedly distinct from either; it has no white about the tail, and differs from all the *Siphiæ* and *Erythrosternæ* which I possess, as well as from *Anthipes moniliger*. The specimen was shot by Mr. William Masson on Mount Tonghoo, in Sikhim.—*Hume*, "*Ibis*, 1872 109."

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323 *ter*.—Erythrosterna hyperythra, *Cab*, J. F. O. 1866, 391.

The upper surface is brownish grey, turning to a purer grey on the rump and upper tail-coverts; tail black, with the basal halves of the lateral rectrices white; the upper tail-coverts, especially the longest, are blackish in parts, specially on the outer webs. The lower surface is a bright red brown or rusty red, except on the middle of the abdomen which is pure white. The red brown colour is most intense on the throat and breast, lighter on the contrary and mingled with albescent on the sides of the abdomen and lower tail-coverts. The prevailing hue of the tibial plumes is grey; the loral region is somewhat dotted with white; the sides of the head and neck contrast in pure, and not brownish, grey with the upper surface, and are divided from the red brown of throat and breast by an irregular blackish line; the under wing-coverts are tinged with rusty yellow; the feet and upper mandible brown; the lower yellow.

The fourth quill is the longest; the fifth longer than the third; and the second about equal to the eighth.

Length, 5·33; wing, 2·88; tail, 3·3; tarsus, 0·78.—*Cabanis*.

The distinguishing characters of the species are the rich orange-brown of the throat and breast, and the black stripe running from the bill down the sides of the neck to the breast, and terminating below the bend of the closed wing. The specimens I obtained were both males, adult and immature; and the above characters are distinct in both, but much more so in the older bird.

Bill dusky above, yellow beneath; irides dark brown; feet purplish brown.—*Holdsworth.*

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338 *bis.*—Brachypteryx palliseri, *Blyth.*

A presumed female is of a rich dark olive or somewhat tawny-brown above, paler below, and whitish along the middle of the abdomen; flanks and lower tail-coverts dark, and a strong rufous tinge on the chin and throat; bill dusky above, whitish beneath; feet brown. Length about 6·5 inch; wing, 2·5 inch; tail, 2·75 inch; bill to gape, ·8 inch; and tarsi, 1 inch. The 5th, 6th, and 7th primaries equal and longest, the 1st 1 inch shorter; and the outermost tail-feathers 1·37 inch shorter than the middle ones. Procured by Dr. Kelaart in the mountain district of the island.—*Blyth.*

Peculiar to Ceylon. The generic position of this bird is not very clear. It was placed by Blyth doubtfully in *Brachypteryx*, but differs from the birds of that genus in the sexes being alike in colouring and in the well-developed tail. I believe it will require generic distinction; but for the present I shall leave it in *Brachypteryx*.

The whole upper surface is of a dark olive-brown; the wings, rump and tail being of a richer brown tint; chin and throat pale rusty; beneath the eye and the ear-coverts dark greyish; the underparts pale olive, becoming brown at the flanks, vent, and under tail-coverts.

Bill dusky above, dark grey below; irides pale buff; feet dark flesh.—*Holdsworth.*

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338 *ter.*—Brachypteryx stellatus, *Gould.*

Forehead, ear-coverts, breast, chest, and abdomen grey, crossed by numerous wavy lines of black; at the tip of each of the feathers of the abdomen, flanks, under (and some few of the upper) tail-coverts an irregular arrowhead-shaped mark of

white ; lores black ; all the upper surface, wings, and tail chestnut red ; bill black ; feet brown.

Total length, 4·5 inches ; bill, 0·62 ; wing, 2·75 ; tail, 2 ; tarsi, 1·25.—*Gould, P. Z. S.*, 1868, 218.

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343 *ter.*—Arrenga blighi, *Holdsw.*

In the adult, or perhaps nearly adult, male the whole head, nape, and throat pure black ; back, wing-coverts and breast black, strongly glossed with indigo ; carpal joint dark smalt blue; wings, tail, rump, flanks, and abdomen dusky brown, the two last slightly rufous ; the upper tail-coverts, rump, and flanks are tinged with blue, and it is not improbable that in an older bird these parts may become of the same colour as the back and breast. In the young the whole bird is brown, darker on the upper surface and more rufous below ; the feathers of the forehead, throat, and breast centred with yellow-brown, and there is an indication of blue on the carpal joint.

The dimensions of the adult male are :—Length, 8 inches ; wing, 4·4 ; tail, 3·5 ; tarsus, 1·4 ; bill at front, 0·6.

Bill black ; irides greyish ; feet black.

An adult female, shot by Mr. Bligh, but almost knocked to pieces, had very much the character of a young bird of the same sex I obtained at Nuwara Eliya ; and the wing spot was brighter, but not of so deep a blue as in the male.—*Holdsworth, P. Z. S.*, 1872, 444.

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349 *bis.*—Cinclus pallasi, *Tem.*

Both sexes alike. The whole upper and lower surface, head and neck of one uniform smoky brown tint or soot colour; feathers of the back margined blackish ; the wings and tail of a greyish black, but the wing-coverts margined sooty ; the tail has twelve feathers ; iris blue ; bill black ; legs and feet grey. Length, 8·78 inches.

The birds of the year have the upper parts of a deep brown, but each feather broadly margined black ; throat whitish ; the feathers margined brown ; the rest of the lower parts of a blackish grey, with a white crescent at the tip of each feather ; the quills and tail-feathers narrowly bordered with white, and tiny spots of this latter on the wing-coverts ; feet of a very light grey.—*Tem : Man. d'Orn.*

Similar to, but darker colored and with a much stouter bill than, *Cinclus asiaticus*. Wing, 3·9; tail, 2·4; tarsus, 1·3; bill, 0·74; the first quill exceeds the longest of the outer greater wing-coverts by 0·3; the second nearly equals the third, which is longest; bill brown, by no means dark; feet verging towards whitish.—*Fauna Japonica.*

"Deep uniform brown; the middle of the belly somewhat blacker; the back and uropygium scaled with black" (*i.e.*, with black margins to the feathers); "wings and tail brownish black. Length, 8·0; wings, 4·0; tail, 2·5; tarsus, 1·25; bill from gape, 1·1."—*Salvin, "Ibis,"* 1877.

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351 *ter*.—Monticola saxatilis, *Lin.*

Dimensions.—(The males are slightly the largest).—Length, 7·5 to 8·1; expanse, 14 to 15·3; wing, 4·5 to 4·8; bill at front, 0·7 to 0·83; tail from vent, 2·75 to 3; tarsus, 1·2 to 1·3. The third quill is the longest, and exceeds the first, which is very small, (whereas in *Cyanocincla cyana* it is of moderate size), by 2·9 to 3; the second by 0·1; and the fourth by 0·25.

Description.—Male.—The whole head and neck all round dull, somewhat greyish-blue; upper part of the back bluish-black; scapulars and the rest of the back somewhat brownish-black, mottled towards the centre with white; rump pure white; upper tail-coverts, those nearest the rump, mingled dingy blue and rufous, those adjoining the tail feathers, bright rufous; central tail feathers brown; lateral tail feathers bright ferruginous; wings dark, almost blackish brown; the coverts darkest, and many of them tipped with greyish or fulvous white; breast, abdomen, lower tail-coverts, axillaries and most of the wing-lining (which latter, however, is paler) bright ferruginous red.

Female.—Upper parts dull brown, more or less tinged ashy, and about the head and rump more or less spotted with a darker brown; the back sometimes exhibits white spots similar to those in the male, and the rump has often a yellowish tinge; the upper tail-coverts are bright rufous; the tail is similar to that of the male, but duller coloured, and with the central feathers somewhat tinged with rufous; the throat and sides of the neck are yellowish white, or sometimes pure white, more or less spotted with earthy or ashy brown; the chest and abdomen are light rufous or reddish white, with narrow wavy transverse brown and whitish bars; the wings are much as in the male, but the coverts are perhaps more extensively tipped with dull white.

The *young* vary a good deal, according to stage of plumage; one before me has the lores fulvous white, and the feathers of the eyelids of the same colour; the whole of the head, nape, back and scapulars a dull earthy or somewhat ashy brown, each feather more or less broadly tipped with fulvous or pale fulvous white, and most of them with a darker brown spot or line just inside this tipping; the rump is pale brownish yellow, each feather with a narrow irregular transverse brown bar near the tip; upper tail-coverts ferruginous, with traces of brown spots near the tips; tail as in the adult, but duller coloured; wings as in the adult, but all the quills broadly tipped with brownish white, and the primaries narrowly, and most of the coverts and the tertiaries broadly, margined with the same colour; chin, throat, and sides of the neck pure white, everywhere, except down the centre of the chin and the throat, speckled with ashy brown; breast and abdomen more or less pale buffy; the feathers inconspicuously tipped white, and with a narrow transverse wavy dark brown line towards the tip; lower tail-coverts and axillaries, as well as wing-lining, pale ferruginous buff.

Degland describes a young bird just taken from the nest, thus: "Above ashy brown; feathers of the head, nape, and back ashy rufous at the centre, brown towards the tips; front of the neck and breast like the back, but with larger spots; abdomen rufous, the feathers irregularly tipped with brown; under tail-coverts uniform light rufous; tail as in the female." Yarrell describes another bird thus: "All the upper parts light and brown, each feather terminated with a spot of greyish white; quill feathers tipped with buffy white; wing-coverts edged with grey and tipped with buffy white; tail feathers red; the two in the middle black in the centre; underpart of the body something like that of the female, but more barred with white, which is again intersected with brown lines."

Neither of these descriptions exactly agree either with the young Yarkand bird above described, or with other European specimens which I possess, and which tally precisely with this latter, but doubtless correctly represent other stages of the young bird's plumage, and I have, therefore, reproduced them.—*Hume*, "*Lahore to Yarkand.*"

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359 *bis.*—Merula vulgaris, *Leach.*

Adult Male.—Silky black; the wings a little paler, inclining to silvery grey on the under surface of the wing; bill orange; feet dark brown; the soles yellow; eye-lid orange. Total

length, 10·5 inches; culmen, 1·05; wing, 4·8; tail, 4·4; tarsus, 1·35.

Adult Female.—Above dusky olive-brown, entirely uniform; the ear-coverts a trifle inclining to ashy brown, with the shafts indicated by a narrow whitish line; wing-coverts exactly the same colour as the back, some of the outermost of the greater and primary coverts washed with clearer brown on the outer web; quills brown, the inner surface silky white; the primaries externally margined with paler brown, somewhat inclining to white towards the tips of these quills; tail uniform dark brown; throat and sides of the neck greyish white, the former spotted and streaked with very dark brown; upper part of the breast ferruginous, mottled all over with triangular markings of dull brown; the rest of the under surface of the body greyish; the flanks strongly inclining to brown; under wing-coverts ashy brown; bill dull yellow, browner along the culmen; feet yellowish; iris dark hazel; eye-lid dull gamboge. Total length, 10 inches; culmen, 1·0; wing, 4·9; tail 4·2; tarsus, 1·35.

Observation.—Macgillivray gives the colour of the bill in the female as dark brown; but we have no doubt, judging from the series of specimens now before us, that the adult bird gets a yellow bill, perhaps never so bright as in the old male. Mr. Robson says that in Turkey "the old male and female have each of them a yellow bill." The hen Blackbird certainly exhibits great variation in plumage, but the differences seem to us to be in great part due to age: thus some specimens are very dark underneath, with scarcely any tinge of ferruginous, while others are much paler, and the reddish colour extends nearly up to the chin or far down on to the lower breast.

Young (fully grown).—Above brown; the feathers of the nape narrowly streaked down the middle with fulvous, these central shafts markings being broad and inclining to rufous on the head; back, scapulars, and upper wing-coverts much broader on the last-named parts and on the wing-coverts, and widening out into a triangular spot; lower part of the back and rump brown, shaded with rufous, which is much clearer on the upper tail-coverts; quills brown, the innermost secondaries faintly glossed with fulvous brown, and the primaries obscurely margined with the same colour; tail entirely black, the feathers pointed at the tips; under surface of the body pale orange rufous; this colour extending on to the forehead and sides of the face; the ear-coverts narrowly streaked with whitish lines along the shaft; cheeks mottled with little specks of brown, collecting on the lower part, and thus forming an indistinct malar stripe; the throat itself scarcely spotted

at all, but the breast covered with more or less distinct small bars of brown, which occupy the tip of each feather; the flanks deepening into rust-colour; the under tail-coverts dusky brown, washed with rufous and lined down the centre with shaft stripes of buff; bill horn-brown, paler on the lower mandible; feet horn-brown. Total length, 9·8 inches; culmen, 0·7; wing, 4·9; tail, 4·1; tarsus, 1·35.

Macgillivray gives the following account of the progress of the young towards maturity:—"After the first moult, which commences in September, and is completed by the end of November, the plumage of the males is in some almost uniformly brownish black, while in others the foreneck, and especially the breast, are more or less lunulated with light brown and grey. In all, the auricular coverts are brownish black, without light coloured shafts, which is never the case in the young females."

The young male birds of the year, though in black plumage, may always be told by their blackish bill; thus it is that we see some specimens, apparently fully adult, with the latter black. There can, we think, be no doubt that when once this bill has became yellow it never changes, only deepening into a fine orange as the bird gets older. On examining these black-billed specimens it will also be observed that the black plumage is more or less shaded with brownish, and even in some yellow-billed birds this shade is apparent, showing that fine silky black plumage is only assumed by the very old bird.—*Dresser*, "*Birds of Europe.*"

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372 *ter.*—Oreocincla spiloptera, *Bly.*

Length about eight inches and a half; of wing four inches, and tail three and a quarter; bill to gape above an inch, and tarsi and inch and a quarter. Colour uniform rich olive brown above, inclining to tawny; below white, with black spots nearly resembling those of the Missel Thrush; middle of throat, lower abdomen, vent and lower tail-coverts, spotless; wing-coverts black, margined more or less with the hue of the back, and each conspicuously tipped with a pure white spot; bill blackish and very robust; the tarsi brown and slender. Inhabits Ceylon.—*Blyth, J. A. S. B.*, 1847, 142.

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372 *quat.*—Oreocincla imbricata, *Layard.*

Holdsworth says that this is nothing but *O. nilghiriensis*, *vide* P. Z. S., 1872, 446. On the other hand I have suspected that it may be *O. gregoriana*, *vide* S. F., IV., 244. I quote now Layard's original description :—

"Among the birds received from Mr. Thwaites is one which I cannot identify with any Indian species, and which may perhaps prove new. I have, therefore, provisionally named it *imbricata* from its scaled appearance.

Length about 9 inches; of closed wing, 4·75; tail, 3; bill to end of gape, 1·25 in; tarsi, 1·08.

General colour of back and upper tail-coverts darkish olive brown, darker on the head; each feather pales off to the edge, where a black border, one line in breadth, succeeds; tail feathers wholly brown; shafts black; shafts of wing feathers dark brown; outer webs reddish brown; inner webs dark brown. On the breast the same style of marking prevails, the colours being pale rufous yellow, darkening into deep rufous, with very dark brown edge; vent and under tail-coverts rufous; bill corneous; legs brown.—*Layard, A. and M., N. H., XIII.*, 212, 1854.

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390 *ter.*—Alcippe nigrifrons, *Blyth.*

Closely affined to *A. atriceps*, Jerdon, from which it differs in not having the whole crown black, but only the forehead continued as a line backward over each eye and the ear-coverts; the tail also is darker and distinctly rayed with dusky black. General hue fulvous brown above, and on the flanks and lower tail-coverts; rest of the under parts pure white; the axillaries tinged with rufescent. Wing, 2·25 inches. The irides are pale straw colour.—*Blyth.*

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404 *bis.*—Pomatorhinus melanurus, *Blyth.*

Resembles *P. Horsfeildi*, but seems always to have a shorter bill, and the colours are more brought out; the hue of the upper parts is more rufescent; the tail much blacker, and the cap is suffused with blackish, mingled with rufescent, but contrasting with the rufescent hue of the rest of the upper parts; the black of the tail affords the readiest distinction. Inhabits Ceylon.—*Blyth.*

The colour of the sexes is alike. The back, wings, flanks, vent, and under tail-coverts rich olive brown with a rufous tinge, especially on the flanks; from the base of the upper mandible to the nape black, extending to the mixed olive brown and black on the top of the head; throat, breast, middle of abdomen, and a conspicuous supercilium pure silky white; tail blackish brown. The young bird is much more rufous generally, and has the ear-coverts and the sides of the neck and breast quite rusty.

Lord Walden has a series of specimens of *Pomatorhinus*, the localities of which are not very intelligible on the labels; but the birds were probably obtained in the south or south-east of the island. All these have the upper surface quite rufous, extending also to the tail; this colouring is not found in one of the many specimens I have obtained from Nuwara Eliya, and is so marked as almost to justify a specific distinction.

Bill yellow, with the base dusky above; irides dark red; feet lead colour.—*Holdsworth.*

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409 *bis.*—Garrulax cinereifrons, *Blyth.*

I have examined a great number of specimens of this species, and have found them agree very closely with each other, but they differ so materially in dimensions from those given by Blyth that I can only suppose he had but one example before him, and that an immature bird. This impression is confirmed by the specific name *cinereifrons*, given by him, and agreeing with his description—"Forehead and cheeks pale ashy"—whereas the birds I have examined have the whole top of the head ashy, that colour often extending over the nape, as well as the cheeks, which are paler than the rest of the head; chin albescent, becoming rufous on the throat; in other respects the colours agree with Blyth's description. The dimensions of a specimen I obtained at Kandy, and which is not at all unnaturally stretched out, but fairly represents an adult bird, measures fully 10 inches instead of 8·5; the other comparative dimensions are:—Wing, 4·75, 4·5; tail, 4·5, 4; bill to gape, 1·3, 1·25; tarsus, 1·5, 1·25.

Bill black; irides buff; feet dusky.—*Holdsworth.*

Akin to *G. delesserti* of the Nilgiris, but differing much in its colouring. General hue a rich brown above, much paler below; forehead and cheeks pale ashy; chin and borders of the outer primaries albescent; bill blackish; legs dusky corneous. Length, 8·5 inches; wing, 4·5; tail 4; its outermost feather, 1·12 shorter; bill to gape, 1·25; tarsi, 1·25.—*Blyth.*

415 *bis*.—Trochalopteron ruficapillum, *Blyth*.

Nearly affined to *T. erythrocephalus*, (Vigors), from which it is distinguished by having the chin and broad supercilia ash grey; forehead greyish; throat, front of neck, and breast rufous, with an admixture of golden yellow on the last; no black spots on the nape and breast, but darker lunate markings in place of them; rest as in *T. erythrocephalum*, to which *T. chrysopterum*, (Gould), inhabiting an intermediate range of territory, is also closely affined. Common at Cherra Poonjee.—*Blyth*.

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432 *bis*.—Malacocercus striatus, *Swains*.

"A comparison of specimens of *M. striatus* I obtained in Ceylon with *M. malabaricus* in the Calcutta Museum, left me in great doubt as to the reason for separating them specifically, and I cannot but think they will ultimately be included under the same name. The depth of the striæ in *M. striatus* varies with age. In a well-grown young bird there is not a trace of striæ on the tertiaries, and they are very indistinct on the tail. In a fully adult bird, now before me, the striation exactly agrees with Jerdon's description of that character in *M. malabaricus*: "the tertiaries are very obscurely striated, but the tail is distinctly so." The distinctive character of *M. striatus* has hitherto been shown by comparing it with *M. terricolor*; but it should have been placed by the side of the Malabar species.

"Young birds are slightly rufous.

"Bill pale yellow; irides pale buff; feet pale yellow."—*Holdsworth*.

Swainson's original description is as follows:—"Entirely light brown; wings and tail darker; quills marked by transverse dark lines; bill and feet yellow; margin of the quills changeable greyish white."

The plate represents the tertiaries and rectrices as very strongly transversely rayed.

Blyth says (*Ibis*, 1867, 300):—

"This very closely resembles *M. terricolor*, but has the tertiaries and tail much more distinctly marked with cross striæ seen at all angles of reflection, and the under parts are more deeply tinged with rufous."

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437 *bis.*—Layardia rufescens, *Blyth.*

Colour deep brown above, with no admixture of grey except on the crown and bordering the primaries; flanks, abdomen, and lower tail-coverts much the same, but the throat and breast vinaceous brown; bill, orbital skin and feet bright orange-yellow; irides white. Length about 10 inches; wing, 4 inches; tail, 5 inches; its outermost feathers, 1·75 inches less; bill to gape, 1 inch; tarsi, 1·37 inch.—*Blyth, Ibis*, 1867, 300.

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453 *bis.*—Spizixos canifrons, *Blyth.*

Spizixos, nobis, *n. g.*—General structure of *Pycnonotus*, but differing greatly in the shortness and (for a member of this group) extraordinary thickness of the bill, the lateral outline of which approaches that of *Conostoma æmodium*, Hodgson, except that the tip of the upper mandible curves more decidedly downward over that of the lower mandible, being also pointed and distinctly notched, with a sinuation corresponding to the notch in the lower mandible: as viewed from above, however, the resemblance to the beak of the *Conostoma* ceases, for that of the present bird narrows evenly to a point from a tolerably wide base; the ridge of the upper mandible is obtusely angulated, and it is distinctly arched, rising at base where concealed by the feathers of the forehead. Rest as in *Pycnonotus*, but approaching to *Criniger*.

Sp. canifrons, nobis.—Length about eight inches, of wing probably three and three-quarters (but the first primaries were growing in the specimen), and of tail three and a half; bill to forehead a little exceeding half an inch, and to gape three-quarters; tarsi also three-quarters of an inch. General colour bright olive green, becoming yellowish-green and more vivid on the rump and margins of the primaries, and inclining also to yellow on the belly, and more decidedly on the lower tail-coverts; forehead and chin pale ashy; the nape, with the sides and front of the neck, somewhat darker, passing into blackish on the throat; and the crown black, its feathers lengthened to form a crest nearly an inch high; tail-feathers largely tipped with blackish; bill yellow; and legs brown.

Hab.—Cherra Poonjee, or the hill ranges bordering on Sylhet to the northward.—*Blyth, J. A. S. B.*, 1845, 571.

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455 *bis.*—Rubigula melanictera, *Gm.*

The entire head, nape and cheeks intense, yet unglossed, black; remainder of the whole upper surface of the body yellowish olive-green; margins of the outer webs of all the wing-feathers more or less of the same colour, the outer edges of the primaries being somewhat yellower; quills and rectrices hair-brown; inner margins of all, except the first primary, edged with yellowish-albescent, increasing in extent with every succeeding quill, commencing with the second; upper surface of the tail brown, as in the quills; middle rectrices faintly edged with the olive-green of the upper plumage; external pairs more decidedly so; under surface of rectrices pale brown, all with white or albescent terminal bands, the middle pair excepted; entire under surface rich saffron-yellow, purest on the chin, throat, abdomen and under tail and wing-coverts. Wing, 3·75 inches; tail, 3·25 inches; iris brown in the female; bill and feet black; the upper and under tail-coverts are very much developed; the first covering fully half the basal portion of the tail, the last extending even further.—*Walden*, "*Ibis*," 1866, 316.

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470 *bis.*—Oriolus galbula, *Lin.*

Adult Male.—Entire plumage, except the wings and tail, rich golden yellow; a broad stripe from the base of the bill to the eye, covering the lores, deep black; wings jet-black, the quills tipped and externally narrowly margined with yellowish white or sulphur-yellow; edge of the wing and under wing-coverts rich yellow, the primary coverts being broadly terminated with the same colour; tail black, broadly terminated with yellow, the outer rectrices being more broadly, and the inner ones less marked with this colour; the central rectrices black, only narrowly tipped with yellow; bill dull reddish; iris blood-red; legs lead grey. Total length about 9-9·5; culmen, 0·95; wing, 5·9; tail, 3·6; tarsus, 0·85.

Adult Female.—Differs considerably from the male; upper parts (excepting the wings) greenish yellow or apple-green; the patch in front of the eye dull brownish black; wings as in the male, but duller and browner, the edgings being pale sulphur-yellow; secondaries and wing-coverts washed with dull greenish yellow; tail as in the male, except that the yellow markings are only on the inner webs, the outer

webs of the feathers being blackish ; under parts white, on the lower throat, breast, and flanks washed with bright yellow, the vent and under tail-coverts being entirely yellow; throat, breast, and flanks more or less distinctly streaked with blackish brown.

Young Male.—Closely resembles the female, but is only a little more yellow in tinge of plumage.—*Dresser*, " *Birds of Europe.*"

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492 *bis.*—Saxicola hendersoni, *Hume.* (For breeding plu., *vide* S. F., II., 526.)

Dimensions.	Male.	Male.	Male.	Female.	Female.
Length	6·5	6·	6·	5·75	5·75
Expanse	11·5	.....	.....	.....	.....
Tail	3·	2·2	2·3	2·	2·2
Wing	3·95	3·75	3·75	3·7	3·5
Bill at front	0·45	0·45	0·46	0·45	0·45
Tarsus	0·95	0·93	0·95	0·9	0·94

Description.—The bill, legs and feet are black.

Plumage.—Male.—The lores, a narrow band on the forehead, cheeks, ear-coverts, chin, throat, upper portion of breast and sides of neck black—a colour that in winter plumage would doubtless be more or less concealed by pale tips to the feathers, which are already beginning to show themselves in the specimens killed early in September. A narrow band from the forehead over the eye and ear-coverts fawny white ; front, top and back of the head, and back of the neck grey brown ; possibly in full breeding plumage these parts may be white, because on lifting the feathers the medial portion of each feather is shown to be white, the tips only brown, the bases dusky. In the specimen which has assumed least of the winter dress, the medial white portion is far broader and more conspicuous than in other specimens further advanced towards the winter plumage.

Wings, scapulars, interscapulary region, black, probably in full breeding plumage nearly pure black ; but in the September specimens all the feathers of the back are so tipped with rufous

brown that the black is greatly concealed, and all the coverts, tertiaries, and secondaries are broadly margined with rufous fawn; rump and upper tail-coverts pure white; central tail-feathers black, except for the basal one-fourth, where they are white; lateral tail feathers white, the exterior on each side tipped for about 0·75 with black; the penultimate similarly tipped for about 0·4, and the rest with only a black spot at the tip, decreasing in size as the feathers approach the central ones, and disappearing entirely in some specimens; lower breast and abdomen rufous fawn, paling towards the vent, which, with the lower tail-coverts, is in some specimens nearly pure white; wing-lining, axillaries, and sides black, but a little white mottling along the edge of the wing at the carpal joint.

The *females* have the foreheads and a stripe over the eye rufous fawn colour; the lores slightly dusky; the ear-coverts more rufous; chin, throat, and sides of the neck nearly unicolorous with the breast, which is as in the male, but the chin and throat are slightly greyer; the front, top, and back of the head and neck, and back are slightly rufous grey brown, the bases of the feathers being rather pale bluish dusky; the wings and tail are as in the male, but with dark brown substituted for black.—*Hume*, "*Lahore to Yarkand.*"

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498 *bis*.—Ruticilla erythronota, *Eversm.*

I believe that there is but little doubt that this species and *R. rufogularis*, Moore, are one and the same species.

Eversman's original description (Add. II., 11, 1841) is as follows:

"Head and nape ashy; back, throat, breast and tail below, ferruginous; belly and vent whitish; wings black; the first coverts white.

"Of the general character of *Ruticilla phœnicura*, but a little larger and stouter; bill black, of the same shape as in *phœnicura*; head above and nape ashy; forehead whiter; back and rump ferruginous; a considerable area on each side of the head black, beginning above the nostrils at the base of the bill, continued through the eyes, occupying the upper cheeks and the sides of the neck, continued to the flexure of the wing, and bounding the ashy colour of the head and neck; throat and breast ferruginous, which colour lower passes gradually into the whitish colour of the belly and vent; the wings, scarcely reaching the middle of the tail, black; towards the shoulder blacker; quills margined ashy; the first coverts con-

stituting the margin of the ulna white, so that an elongated white spot (or patch) is formed, bounded above by the black edge of the wing, below by the latest coverts; the coverts of the primary quills black, in the middle white.

"The two middle tail feathers blackish, the rest ferruginous; the outer feather on each side margined blackish towards the tips.

"I killed two males on the 5th March in the Stoney Altai Mountains near the village Uimon.

"*Dimensions.*—Length, 6·2; tail, 3·02; bill from frontal angle, 0·45; from gape, 0·65; tarsus, 0·98."

Moore's description of his species runs thus: "*Male.*—Crown and back of neck mixed grey and ash; lores, ear-coverts and sides of neck black; wings and medial tail feathers dark brown; apical margin of the exterior web of the outer tail feather dusky; smaller wing-coverts (except the feathers immediately on the shoulder), scapulars, basal portion of the speculars, and apical margins of the greater wing-coverts white; exterior margin of the secondaries pale rufescent; throat and breast, back, and upper tail-coverts and tail rufous; abdomen, under wing and tail-coverts pale rufescent.

"*Female.*—Cinereous brown above, rufescent beneath; wings dark brown, margined with pale rufescent; lower part of back, upper tail-coverts and tail rufous; the two medial feathers dark brown; exterior margin of the outer dusky."

Blanford thus describes Shiraz specimens:—

"*Male.*—Head and nape pale ash grey, with a few black feathers above the nostrils and base of the bill, scarcely amounting to a distinct frontal band; back, throat, and breast deep ferruginous; rump a little paler; lateral rectrices the same, with a little brown near the ends of the external webs of the outer two pairs; central pair of rectrices dark brown throughout, except on the margin of the outer webs, which is rufous; extreme chin, sides of the chin and neck, lores, and ear-coverts black; quills hair brown, with pale edges; coverts blackish brown, with a broad transverse white band formed by the median coverts, and the greater coverts of the secondaries nearest the body; abdomen, under tail-coverts, and inner margins of the quills pale isabelline; axillaries white at the ends, black towards the base; inner wing-coverts mixed black and white. In specimens shot in September and December all the colours are less pure, the feathers of the crown have brown margins, and the red of the back and breast is much concealed by the brown margins of the feathers above, and by isabelline edging below; the black of the sides of the head and neck also is brownish.

"*Female.*—Rather pale earthy brown above; rump and outer tail feathers ferruginous; the latter brownish at the ends; central

rectrices dark brown; quills hair brown with pale edges, which are broadest and whitest on the last secondaries and the median coverts, forming an indistinct whitish bar on the wing; sides of head and lower parts pale greyish brown, much paler than the back, and becoming whitish on the abdomen and lower tail-coverts, the latter having a very slight rufous tinge. Measurements :—

	Wing.	Tail.	Tarsus.	Culmen.
Male	3·45	2·7	0·9	0·62
"	3·42	2·75	0·9	0·6
Female	3·25	2·65	0·85	0·62
"	3·36	2·8	0·92	0·62

In some specimens all the outer rectrices are brownish at the tips, the shafts being the darkest parts, but this is not always the case."

504.—Ruticilla cæruleocephala, *Vig.*

Mr. Blyth correctly points out that the female is not, as Dr. Jerdon supposes, very similar to, but in fact *very* different from, the male. The intensely deep ferruginous upper tail-coverts distinguish the female of this species from every other Indian bird for which it could possibly be mistaken.

Dr. Jerdon's dimensions also differ widely from the results of my measurements.

Of a male.—Length, 5·8 to 6·0; wing, 3·12; bill at front, 0·36; fourth and fifth quills equal, sixth and third equal. In winter plumage, both the black and blue of the male are so concealed by pale brown or rufous tippings that even the male is not easily recognised from Dr. Jerdon's description.

As for the female, she is dull, dark olivaceous brown above, tinged with rusty on the rump, and with the upper tail-coverts deep ferruginous; throat, breast, and flanks dull earthy brown, somewhat paler than back; abdomen albescent; lower tail and under wing-coverts nearly pure white; tail blackish brown; wings dark brown; tertiaries edged pale rusty, some of the wing-coverts with more or less of white or pale tippings; chin, and a scarcely perceptible frontal line, albescent.—*Hume*, "*Lahore to Yarkand.*"

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514 *bis.*—Cyanecula wolfii, *Brehm.*

There are three forms of Blue Throats.

First.—With the entire throat unspotted blue. This was the form to which the name *wolfii* was assigned.

Second.—With a white satin-like spot in the middle of the blue. This is the form to which Brehm. gave the name of *leucocyanea*.

It is generally assumed, (though denied by Newton, Yar. B. 324) that these two forms are one species, and on this assumption the name *wolfii* has precedence.

Third.—With a red spot in the middle of the blue. This is Linné's *suecica*.

The white spot form is excessively rare in the plains of India. I possess now only one single specimen, a male in full breeding plumage, shot by Mr. Adam in Tirhoot, on the 9th April; and I have seen altogether perhaps half a dozen from various parts of India. In the interior of the Himalayas, north of Ley and the Indus, many specimens have been met with. I am by no means sure that *wolfii* and *leucocyanea are* one and the same, but I have no sufficient series of specimens, or personal knowledge of the two forms to enable me to come to any conclusion on the subject, and by way of calling attention to it reproduce Dresser's description and remarks :—

"*Adult Male.*—(Barcelona, May.) Resembles the adult male of *Cyanecula suecica*, except that the spot in the centre of the blue throat is pure white instead of bay.

"*Adult Female.*—(Spain.) Upper parts as in the adult male; throat and foreneck white, on the sides of the throat marked with black so closely as to appear to have a continuous broad line of that colour; across the upper part of the breast there is also a band of black markings, but less clearly defined than those on the sides of the throat; rest of the underparts whitish, washed with grey, especially on the flanks; and this grey tinge is also present on the pectoral bands and the sides of the throat; under tail and wing-coverts washed with pale orange.

"*Young Male in first Autumn.*—(Solling, Hartz). Upper parts as in the adult bird, but rather duller, and more uniform in colour, and here and there a few of the nestling feathers remain; secondaries and wing-coverts margined with rufous; from the base of the bill over the eye pale rufous; chin and throat white, washed with yellowish, on each side bordered with black, and to some extent dull blue; below this white patch a broad pectoral band of blackish, and here and there a blue feather intermixed with some of the feathers of the nestling plumage; and below this the breast is washed with rufous; rest of the underparts dull white.

"*Adult Male in Winter.*—(Malaga, February). Resembles the male in spring plumage; but instead of the brilliant blue throat, with a central white spot, the chin and upper parts of the throat are white, only on the sides (which are otherwise blackish) slightly marked with blue; lower part of the throat

below where the white spot is present in the summer plumage blue, obscured by the feathers having whitish tips; below this the black and bay bands are present, but are somewhat obscured, owing to the feathers having white tips.

"*Observations.*—A male killed in December, near Malaga, now in the collection of Mr. Howard Saunders, resembles the specimen last described, but has the white on the chin and throat rather blurred with black and slightly washed with pale yellowish orange; and I should think that it is a younger bird than that, more especially as I observed that all the immature specimens appear to have the throat slightly clouded with yellowish; and I find it most difficult to distinguish them from the young of *C. suecica* in that plumage. A male, in my own collection, shot at Halle, in Saxony, in the autumn, resembles the adult female above described, but has the lower part of the throat and upper part of the breast washed with dull blue; and there are one or two dull orange-coloured feathers on the breast, some of which are narrowly tipped with blue.

The old female probably assumes a plumage closely resembling that of the young male, as is the case with the female of *C. suecica*. A specimen obtained at Granada, in September 1870, and marked "female," has the throat and breast as in the male in winter plumage above described, but has the white on the throat washed with yellowish.

I have carefully examined what specimens I have been able to procure of *Cyanecula wolfii*, especially the form having the blue throat without any central spot, and am unable to find any specific difference between it and the ordinary white-spotted bird. Even those which have the throat at the first glance pure unspotted blue, have, on closer examination, the base of at least one or two feathers white. I have before me examples with the central white spot very clearly developed and large, others with it smaller, and in fact there is a perfect gradation between those with a large spot and those having the blue uniform and unspotted. Professor Newton (Yar. Brit. B., p. 324) looks upon the unspotted bird as being distinct from the present species, and states that it has the tarsus smaller, measuring 0·95 to 1 inch, whereas in the white-spotted bird it measures 1·04 to 1·08, and in *C. suecica* from 1 inch to 1·18. Against this I may remark that I have measured three examples of the unspotted bird and compared them with three of each of the white-spotted species, and *C. suecica*, these latter being picked out at random, merely as being extremely fine and adult males; and the measurements are as follows :—

	Culmen, inch.	Wing, inches.	Tail, inches.	Tarsus, inch.
Cyanecula wolfii (unspotted)	0·68-0·7-0·7	2·86-2·85-2·98	2·43-2·28-2·4	1·09-1·12-1·0.
" (white-spotted)	0·68-0·71-0·69	2·84-2·98-2·78	2·3-2·41-2·33	1·05-0·95-1·03.
Cyanecula suecica, (red-spotted)	0·7-0·7-0·67	3·02-2·9-2·86	2·47-2·45-2·46	1·2-1·1-1·1.

With the above facts before me I cannot look on the unspotted bird as being a distinct species, but consider that it is merely in the state of plumage in which the white spot is absent, and is probably an old male of the White-spotted Blue Throat. This being the case, I have no alternative but to use the specific appellation of *wolfii* instead of *leucocyanea*, it having the precedence by nine years.—*Dresser*, "*Birds of Europe.*"

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519 *bis.*—Schoenicola brunneipectus, *Bly.* (*vide* S. F., VII., 38.)

Blyth's description of this species, which I reproduce for purposes of comparison, appears to me as I said at the time (S. F., III, 284) to agree perfectly, so far as it goes, with Mr. Brooks' *S. mandelli.* Of course spotting or no spotting on the breast goes for nothing in this group.

Blyth says, *Ibis*, 1867, 19 :—

Dumeticola brunnectus, *Sp. Nov.*

Size and form of *D. affinis*, and the upper parts are of the same uniform dark olive brown colour; lores, chin and throat, and middle of the belly pure white; sides of the throat, breast, flanks, and tibial plumes rufescent brown; lower tail-coverts brown, with broad, pale tips, though considerably less broad than are the white tips to the lower tail-coverts of *D. affinis.*"

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536 *quat.*—Prinia humilis, *Hume.*

Dimensions.—Length, 4·75; expanse, 5·5; tail, 2·25; wing, 2; when closed, reaching to within 1·38 of end of tail; bill from front, ·4; tarsus, 0·76.

Descriptions.—Head, neck, and upper back pale earthy brown, with an olive green shade; scapulars, lower back, and rump rufous olivaceous brown; quills brown, edged with rufous brown; tail (of twelve feathers) brown, faintly rufous, obscurely rayed above, beneath all but the two middle feathers conspicuously and narrowly tipped with white, and with a broad blackish brown subterminal band; lower parts silky fulvous white; the breast shaded obscurely with dusky, and the flanks, lower abdomen, and tibial feathers distinctly tinged with pale rufous buff; legs and feet pale reddish brown; bill black;

irides pale orange. A very narrow pale line from the nostrils over the eye, almost meeting on the forehead, which line, very apparent in the freshly-killed bird, is hardly traceable in badly-preserved skins.

The bill in this species is really much smaller and feebler than that of *P. socialis*, *P. flaviventris*, *P. stewarti*, or *P. gracilis*, and is about the same size as that of *P. hodgsoni*.

This species differs conspicuously from *P. gracilis* in the concolorous back and head, and the generally paler and greener tint of the upper parts. I at one time fancied that this might be Dr. Jerdon's *P. adamsi* (B. Ind., II., p. 170); but that has *ten*, while this has always *twelve* tail feathers.

These little birds are common (climbing and flitting about restlessly in low scrub jungle) throughout the North-West Provinces and the Panjab, in suitable localities. I have never found them in fields or gardens, but always amongst scattered stunted bushes or waste places.

The stomachs of all I examined contained tiny ants and almost microscopical beetles.—*Hume*, "*Ibis*," 1870, 144.

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543 *bis*.—Drymoica fusca, *Hodgs.*

Type, *Prinia fusca*, mihi.—Length, 5 inches; bill, 0·56; tail; 2·6; wing, less 1·75; tarsi, 0·81; central toe and nail, 0·56 hind, ·43. Above lutescent brown; laterally luteous; below white; tips of the caudals with black drops, margined with white; bill dusky; legs corneous; iris brown.—*Hodgs.*, *P. Z. S.* 1845, 29.

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545 *ter*.—Drymoica valida, *Blyth.*

Differs from *D. sylvatica* of the Nilgiris in its darker shade of colour above, and larger and stronger bill and legs, which last appear to have been of a deep reddish brown colour; the flanks and sides of the breast are rather dusky; irides light red-brown.—*Blyth.*

Bill entirely black, stouter and considerably deeper than I have seen in any other Ceylon species; top of the head, lores, and general upper surface dark greyish brown; beneath whitish, with a pale fulvous tinge; cheeks, sides of the breast, and flanks dusky. Length, 6 inches; wing, 2·4; tarsus, 1; bill at front ·5.—*Holdsworth.*

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553 *bis.*—Hypolais caligata, *Eversm.*

I reproduce my original description of *Jerdonia agricolensis*, which is *said* by ornithologists at home, who are supposed to have examined Eversmann's types, to be identical with his *caligata*. The matter seems to me still open to question, but anyhow if the birds should prove to be different, it is the bird described by me below that occurs, and indeed is very common with as in Upper and Western India.

Dimensions.—Length, 4·5 to 5 ; expanse, 6·5 to 7 ; wing, 2·22 to 2·32 ; tail from vent, 1·9 to 2·1 ; tarsus, ·8 ; middle toe and claw, ·63 ; hind toe and claw, ·4 ; outer toe and claw, ·38 ; bill from front, ·35 to ·39 ; from gape, ·55 to ·62 ; width at gape, ·28 ; height at base, ·09.

Description.—Bill, upper mandible dark brown, with the edges light ; lower mandible flesh-coloured, rather dusky towards the tip ; inside of mouth orange yellow ; legs and feet fleshy grey, in some tinged with yellowish, especially on the soles, in some glaucous ; irides hazel brown.

Plumage (*immediately after the Autumnal moult*).—Feathers of the head, nape, back, and scapulars lax, hair brown, tinged towards the margins with a paler, slightly rufous or fulvous brown (the whole in some specimens with a faint shade of olive.) Rump paler and rather more rufous in tone ; upper tail-coverts hair brown, with lighter fulvous brown edges ; tail dark brown, all but the two outermost rectrices very narrowly margined with pale fulvous or greyish white ; outermost feather on each side with the whole of the outer web dull or greyish-white ; tips and internal margin also greyish white ; rectrices next to the outermost similar, but with less white on the outer webs and more on the tips.

A conspicuous superciliary streak from the nostril extending over the eye to the ear-coverts of a pale buff, or rich cream-colour ; lores, cheeks, and ear-coverts the same as the crown of the head, but of a lighter shade ; the lower parts buffy, varying in shade and in warmth of tone in different specimens, but always palest, and in some almost white, on the chin, the middle of the abdomen, the vent and lower tail-coverts ; sides and flanks slightly infuscated ; axillaries, wing-lining, and edge of wing from carpal joint cream coloured, varying in warmth of tinge in different specimens ; lower surface of remiges and rectrices brownish grey.

The wing hair brown, as dark as the tail ; the primaries and secondaries very narrowly, and the coverts and tertiaries broadly, margined with rufous or fulvous brown of the same tone as the rufous of the back.

It is only on close examination that the difference in the colours of the margins and centres of the feathers of the head, back, and other parts is observed; looked at from the distance of a couple of feet, these parts appear of a uniform brown, less rufous in tone than that of the same parts of *Acrocephalus agricolus*, to which the bird, after its autumnal moult, presents a general resemblance in colouring (though of course differing, as already noticed, in structure), but still, in most specimens, with a certain shade of rufous. The amount of this of course varies, some specimens being greyer and some more rufous.

At this season of the year it would be impossible (setting aside structural differences) to mistake this species for *Hypolais rama*; it is altogether a darker bird, conspicuously so when on the wing; it never has the uniformly mouse or grey brown of that species; its habits, too, are widely different, quite those of an *Acrocephalus* (like *A. dumetorum*), frequenting thick crops, from which it is only flushed with great difficulty, dropping again after a short flight. *H. rama*, on the other hand, is rarely found in, and never sticks close to thick ground covert, but affects trees and bushes, more especially the babool (*Acacia arabica*).

The notes are entirely those of an *Acrocephalus*, most resembling those of *A. dumetorum*, but perhaps rather more saxicoline in their character. In the spring and summer the whole upper surface of the bird becomes paler, and what some would describe as more rufous, others as more sandy, while the lower parts lose a great deal of their warm buffy tint; the remiges and rectrices also fare similarly. In this stage it might easily be mistaken by a casual observer for a small specimen of *H. rama;* but its upper surface is always somewhat more rufous in tone than that of the latter.

Comparing specimens of our bird freshly moulted, at the close of September, with specimens of *H. rama* in similar plumage, the difference (independent of structure and habits) is very noticeable. *H. rama*, even in its fresh feathers, is a smooth, light grey-brown bird, very uniform in colour, and with the lower parts quite devoid of the ruddy buff tint of *caligata*. The feet, too, of *H. rama* are of a greenish blue grey, darker about the foot (the soles excepted), while the feet of *caligata* are of a warmer flesh colour; indeed, in the colour of the feet and tarsi the birds differ conspicuously.—*Hume*, "*Ibis*," 1870, 182.

553 *ter.*—Hypolais pallida, *Hemp. and Ehr.*

This species, or sub-species, is very close to *H. rama*, but is somewhat larger with a longer and decidedly larger bill. I have received a specimen from Sindh, which was undistinguishable from one of *elæica* (which I include under *pallida*) from Europe.

The two forms *rama* and *pallida*, however, quite run into each other, and many of the Sindh and Beluchistan specimens are quite intermediate.

Blanford contrasts thus the dimensions of typical examples of both races :—

H. rama. Wing, 2·35-2·53; culmen, 0·57-0·68; 2nd primary equals 7th-9th
H. pallida. „ 2·45-2·7; „ 0·6-0·72; 2nd „ „ 5th-7th

The following is Dresser's description :—

"*Adult Male*—Upper parts pale dull olive-brown, clearer on the back in colour, and rather lighter on the rump; from the base of the bill over the eye a rather indistinct yellowish stripe; wings dark brown; the inner secondaries lighter in colour, all the feathers having lighter margins; tail dark brown, very narrowly edged with lighter brown; underparts buffy white; the throat and the centre of the abdomen almost pure white; flanks washed with pale brownish; bill horn-brown, dull yellowish at the base of the lower mandible; legs pale horn brown; iris dark brown. Total length about 5 inches; culmen, 0·62; breadth of under mandible at base, 0·22; wing, 2·63; first primary extending 0·27 beyond the wing-coverts, and 1·15 shorter than the second; second 0·2 shorter than the third; third and fourth equal; tail, 2·2; tarsus, 0·83.

"*Female.*—Similar to the male, but, if anything, a trifle greyer on the upper parts."—*Dresser*, "*Birds of Europe.*"

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553 *quat.*—Hypolais languida, *Hemp. and Ehr.*

This is another of this group of earth brown Warblers that may be accepted as a species or ranked as a race *selon le goût*. This present form is more distinct than many others, and though extremely like *H. pallida*, may be distinguished from it by its somewhat larger size and much shorter and narrower first primary, and if birds killed in the same month are compared by its greater tinge. It occurs in Beluchistan, and has been reported from Sindh, whence *non vidi*.

Dresser thus describes it :—

"*Adult Male.*—(Magas, Beluchistan, 28th March). In general coloration of plumage similar to *H. pallida*, but a trifle greyer in general tinge ; bill narrower and more slender ; first primary much shorter and narrower, more resembling that of *H. olivetorum*. Total length, about 5·25 inches ; culmen, 0·75 ; wing, 3·1 ; tail, 2·75 ; tarsus, 0·9 ; first primary scarcely as long as the primary coverts, 1·8 shorter than the second ; second, 0·2 shorter than the third ; third and fourth about equal ; soft parts as in *H. pallida*."—*Dresser*, "*Birds of Europe*."

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566 *ter*.—Reguloides chloronotus, *Hodgs.* (*vide* S. F., IV., 505).

"**Abrornis maculipennis**, *Nobis, Sp. Nov.*

"This is a species allied to *A. superciliaris* (*A. flaviventris*, No. 574), but with two distinct yellowish-white wing bands and an oval whitish spot at the tip of the outer web of each tertiary ; crown dusky greyish-olive, with white supercilia and albescent medial streak ; upper parts olive green ; the throat and breast ashy ; belly, flanks and rump band dull yellow ; three outer tail-feathers on each side having their inner webs white. Wing, 2·75 inches ; tail, 1·25 ; tarsi, 5·8. From Nipâl or Sikhim. Specimen in the India Museum at Fyfe House."—*Blyth*, "*Ibis*," 1867, 27.

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577 *bis*.—Abrornis griseifrons, *G. R. Gr.* in. *Blyth.*

"Upper surface olivaceous yellow ; front obscure grey ; eyebrows, from nostrils to the hind head and throat, white ; ear-coverts obscure grey and white ; wing-coverts fuscous, margined with olivaceous yellow ; quills fuscous black, margined externally with olivaceous yellow, and internally with rufous white ; tail fuscous grey, margined externally with olivaceous yellow, and internally with rufous white ; beneath the body bright yellow ; bill plumbeous, and feet pale. Length, 4·1 inches ; wings, 2 ; tarsi, 9 ; bill from gape, 5."—*Blyth*, "*Ibis*," 1867, 27.

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584 *bis*.—Henicurus guttatus, *Gould.*

Head, breast, and back black ; the latter marked with round or oblong white spots, from the size of a No. 4 shot on the

lower back to that of a pea on the neck, where they are closer together, and form a collar less conspicuous than in *H. maculatus;* a circular patch on forehead; belly, flanks, tail-coverts, and wing-bar white.

Female the same, with a tinge of brown on the back of the head; irides dark brown; legs and feet fleshy white; bill black.

The young is of a dull brownish-black, and has no white on the forehead or back.

Length, 9·5 to 10·5 inches; tail, 5 to 6; bill from gape, ·87; tarsus, 1·12; wing, 4.

This species was not distinguished from *H. maculatus* until 1865, when it was separated by Mr. Gould under the appropriate name of *H. guttatus.* Though several other distinctive marks are given, by which it is said to differ from its western representative, such as its smaller size, narrower tail-feathers, and smaller patch on the forehead, I am unable, after comparing a large series, to find any constant difference except in the shape and arrangement of the white spots on the back; and I believe that when a large series is procured from different parts of Nepal, it will be found impossible to define the limits of the two forms.—*Elwes,* "*Ibis,*" 1872, 261.

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592 *bis.*—Budytes rayi, *Bp.*

Although I do not believe in the occurrence of this species within our limits, it may be as well to furnish such a description as will suffice for its identification in case it does turn up.

Just outside our limits in Yarkand it is common.

Adult Male.—(Pagham, 23rd April). Upper parts olive-green, becoming yellowish green on the crown and forehead; rump rather richer in colour than the back; quills dark greyish brown, the primaries narrowly, and the secondaries broadly, margined with buffy white, tinged with sulphur yellow; larger wing-coverts broadly tipped with sulphur-yellow; tail blackish brown, the two outer rectrices on each side white, margined on the basal portion of the inner web with blackish brown; entire underparts rich yellow; a broad stripe of yellow passes from the base of the bill over the eye nearly to the nape; and another streak of the same colour passes under the eye, there being an olive-green line between this latter and the bright yellow throat; bill and feet blackish; iris dark brown. Total length about 6·5 inches; culmen, 0·6; wing, 3·25; tail, 3·0; tarsus, 1·0; hind toe with claw, 0·68; hind toe, 0·38.

Adult Female.—(Pagham.) Resembles the male, but is much duller in colour; the throat and superciliary stripes are yellowish white, and the underparts are much paler yellow.

Young in first Autumn.—(Pagham, July.) Upper parts brownish olive, tinged with green on the rump; underparts buffy white, tinged with sulphur yellow on the lower abdomen; the lower throat and breast washed with brownish buff, forming a sort of dark band; superciliary stripe buffy white; wings and tail as in the adult, but with rather broader and whiter margins, tinged with buff, but not with yellow.

Observations.—In autumn dress the adult birds much resemble the young above described, but lack the buffy brown on the lower throat and breast. But sometimes the old males appear to retain their summer dress very late; for one killed on the 16th September differs only from old males in full spring plumage in having the underparts rather paler. I have figured an old male with the yellow head from Southern Russia, in which plumage it is called *M. campestris*, by the continental dealers; but I may add that I have an old male from Hampstead, near London, in the same plumage, except that, if anything, the Russian specimen is a trifle cleaner and brighter in colour, though there is scarcely any difference between them. In this plumage the sides of the head and forehead, as far as the centre of the crown, are like the underparts, rich canary yellow, and only towards the hind crown and nape does this colour gradually merge into green on the hind neck and back. Donovan (*l.c.*) figures a British-killed bird which is much more richly coloured than any South Russian example I have ever seen, the entire head and upper neck being rich canary yellow. My second specimen, from Southern Russia, has the head coloured as in ordinary adult British birds.—*Dresser, "Birds of Europe."*

594.—Budytes calcaratus, *Hodgson.*

Under this name should probably stand the species described by Jerdon under the name of *citreola*; the true *citreola* is of course quite a different species, and in the fullest breeding plumage has the greater part of the upper surface grey, with only a black hood or cowl over the nape and upper back; on the other hand this present species *calcaratus*, which is described and figured by Gould under the name of *citreoloides*, has the entire back jet black in breeding plumage.

Hodgson only described a bird in cold weather or early spring plumage, so that the distinction does not come out very clearly in this; still looking to the black wings, upper tail-coverts, &c., I have no doubt that the name *calcaratus* was applied to and must stand for this species.

I reproduce from Asiatic Researches, Vol. XIX., Hodgson's original description:—

"Obviously distinguishable from the typical Wagtails by the shortness of the tail, the superior height and strength of the tarsi, and the longer, straighter, and extremely acuminated nails, the hind one of which is longer than its toe, and in our species as nearly *straight* as may be.

"Length, 7·75 inches, whereof the tail is but 5·5, extending only two inches beyond the tips of the wings. Expanse of wings, 11 inches; weight, less 1oz.; bill, 0·62 of inch, and equal to head; tarsus, 1·19; central toe, 0·62; hind, 0·37; its claws, 0·44; above (with) the flanks grey slaty; below, bright yellow; a yellow line on each side the head, above the eye, from bill to nape; wings, six central tail feathers, and upper coverts of tail black; the greater coverts of wings and the alar plumes very widely margined below, and also tipped with white; the six lateral rectrices much blanched, increasingly to the extremes which are nearly all white; legs black; bill horn grey; iris brown.

"Female considerably less, 6·75 inches long; similar to the male, but more dull coloured, and the alar and caudal black plumes of the male, brown in her."

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605 *quint.*—Anthus pratensis, *Lin.*

Adult in Summer.—Upper parts with the centres of the feathers blackish brown, and the margins dull hair brown with the faintest olive tinge, the margins being narrowest on the crown and the interscapulary region; rump almost uniform brown, washed with olivaceous; wings dark brown; primaries narrowly edged with dirty white, the inner ones having the margins washed with dull olive green; inner secondaries and wing-coverts broadly margined on the outer webs with dirty white, and washed with olivaceous brown; tail dark brown; the outer rectrix white, excepting an oblique broad patch from the base nearly to the tip of the inner web; the next in order with a white patch on the inner web at the tip; sides of the head dull brown, marked with blackish brown; underparts white; on the sides of the neck, breast, and flanks profusely

marked with rather elongated blackish brown spots; beak blackish brown, inclining to yellow at the base of the lower mandible; legs light brown; iris dark brown. Total length about 5½ to 6 inches; culmen, 0·6; wing, 3·0; tail, 2·25; tarsus, 0·85; hind toe with claw, 0·8; hind claw, 0·5.

Adult in Winter.—Upper parts rather browner than in the summer plumage, and the underparts washed with yellowish buff, which colour is deeper on the breast and flanks.

Young.—The young bird differs very slightly from the adult, in having the spots on the upper parts and breast larger, and the breast and flanks washed with dull reddish buff.

Female.—Is undistinguishable from the male in plumage.—*Dresser, "Birds of Europe."*

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624 *bis*.—Staphidea castaniceps, *Moore.*

Colour above dull brownish olive; the shafts of the dorsal and scapular feathers pale; crown dark chestnut and subcrested; the frontal plumes short and scaly, and having pale margins; the occiput paler chestnut; behind the eyes whitish; ear-coverts chestnut; wings blackish; the secondaries and tertiaries with pale shafts; axillæ white; tail black, the three outer feathers graduated, and tipped obliquely externally with white, the next white at the extreme tip only, and the rest entirely black; the whole underparts of a dirty ruddy white colour; bill reddish brown; legs yellowish.

Length, 5·75 inches; of wing, 2·3; tail, 2·25; its outermost feather, 0·62 less; bill to front, 0·3; to gape, 0·5; tarsi, 0·75 of an inch.—*Moore, P. Z. S.*, 1854, 141.

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631 *B*.—Zosterops simplex, *Swinh.*

Mr. Blanford thought he obtained this species (?) in Sikhim, and so no doubt he did, since having some of Swinhoe's types before me, I cannot separate them from our Indian *palpebrosa*, which varies a little according to sex, age and season in size and in the tinge of the upper surface, throat and breast.

Here however is Swinhoe's own definition, P.Z.S., 1863, 203:—

"*Similis* Z. palpebrosæ *ex India, sed major; supra magis viridis; alis caudaque saturatioribus.*

"It has its nearest ally in *Z. palpebrosa* of India, being, like it, light grey on the underparts. An occasional specimen or two, however, may be picked out of my Amoy series with a tinge of chestnut brown on the under parts, showing the tendency of the species towards the Japanese *Z. japonica*. Some have the belly deeper grey than others; the yellow on the throat and vent varies in intensity, as also does the green of the upper parts; but these are chiefly distinctions of sex and age."—*Swinhoe*.

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631 *bis*.—Zosterops ceylonensis, *Holdsw*.

Upper surface dark olive-green, deeper on the head and paler on the upper tail-coverts; a circle of small white feathers round the eye; lores and below the eye dusky, but not very conspicuous; chin, throat, and centre of breast greenish yellow, shading at the sides of the neck and breast into the colour of the back, and giving the appearance of an incomplete pectoral band; the rest of the underparts bluish white, darkest on the flanks, and sometimes tinged in the centre with yellow; under tail-coverts yellow; quills and tail dusky brown, both margined externally with olive green, and the latter faintly marked with transverse striæ. Sexes alike.

Length, 4·75 inches; wing, 2·4; tail, 1·8; bill at front, ·5; tarsus, ·7.

Bill dark leaden above, paler below; irides light brown; feet lavender.—*Holdsworth*, *P. Z. S.* 1872, 459.

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634 *bis*.—Ægithaliscus leucogenys, *Moore*.

Colour above grey, tinged with pinkish on the rump; before the eye and a broad streak over it black, passing to mixed black and grey on the nape; the centre of the head dusky reddish isabelline; base of lower mandible, below the eyes, ear-coverts and sides of the neck white; chin and throat jet black; abdomen pale pinkish-isabelline; wings dusky and having an isabelline tinge; the winglet and coverts of the primaries black; the primaries and secondaries fringed externally with grey; axillæ white; tail dusky, tinged with isabelline, the outer feathers graduated and obliquely tipped externally with white, the centre feathers margined with grey; bill black; feet yellowish brown.

Length, 4·5 inches; of wing, 2·12; of tail, 2·25; the three outer feathers graduated, the middle pair, 0·2 shorter than the next; bill to frontal plumes, 0·2; to gape, 0·42; tarsi, 0·58 of an inch.

Hab.—Afghanistan (?) In the museum of the East India Company. "Found in pairs, in the woods above Balu Chughur, at 4,000 feet elevation. Irides straw colour."—*Griffith, MSS.* Notes.—*Moore, P. Z. S.*, 1854, 139.

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644 *bis.*—Parus griffithii, *Bly.*

This species is founded on a drawing of a bird obtained by the late Dr. Griffith, between Assam and Ava. With a near affinity in colouring to *P. xanthogenys* and *P. aplonotus*,* it is at once distinguished by being crestless, and by the details of its markings. Length of wing about 2·75 inches, and of tail 2·25 inches. Colour black, with the lores and sides of neck, the rump, underparts, an occipital spot, and triangular terminal drops on the dorsal feathers yellow; throat and foreneck black; tail considerably forked, and tipped with white; also the greater wing-coverts and the tertiaries, with the base and edge of the primaries.—*Blyth, J. A. S. B.*, 1847, 445.

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655 *bis.*—Accentor montanellus, *Pall.*

I am inclined to believe that there may possibly be more than one Hedge Sparrow of this type confounded under this name.

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* *Aplonotus*, really equals and has precedence of *jerdoni*, and though, strange to say, Blyth himself later identified *aplonotus* with *xanthogenys* and re-named the former, yet a perusal of the original description, J. A. S. B., XVI, 444, 1847, wherein the bird is said to inhabit the mountains of Central India, leaves no doubt that this re-naming was some oversight. Blyth's mistake, I fancy, arose thus:—First he got hold of the Central Indian species, which he called *xanthogenys*; then he got the Eastern Himalayan form, and he thought that this must be the true *xanthogenys*, and then he named the Central Indian bird *aplonotus*. Later he got Western Himalayan birds, and found *they* were the *true xanthogenys*, and named the Eastern Himalayan form *spilonotus*. He did not at the time recognize the difference between the Western Himalayan and Central and Southern Indian forms, and so he reduced his *aplonotus* to a synonym of *xanthogenys*. Later again he saw that the Central Indian species was different, and forgetting apparently that it was to a specimen of this form and not of the Western Himalayan race that he had already given the name *aplonotus*, he re-named it *jerdoni*. The former name of course stands; references as follows:—

648.—Machlolophus aplonotus, *Blyth.*

J. A. S. B., XVI, 444, 1847.—S. F., VII, 405.
xanthogenys, *Jerd.* Madr. Journ. XI, 7, Jany.
1840, et *Blyth*, J. A. S. B., XI, 59, 1842; nec *Vig.*
jerdoni, *Blyth*, J. A. S. B., XXV, 445, 1856.—
S. F., III, 492.—Gould B. of As. Pt. IX, pl. 16.

The form that just straggles inside our boundary in Sikhim and Nepal is probably *fulvescens* of Severtsov (*vide* S. F., III, 428), and may prove separable from Pallas' bird, but the matter has not been worked out yet, and it will for the present suffice to quote the latest description of this latter available :—

"*Adult Male.*—(Kultuk, 14th April). Centre of the crown greyish brown ; sides of the crown, lores and sides of the head, including the auriculars, black ; a broad yellowish buff band from the base of the bill over the eye and passing round the auriculars to the neck, joining the same colour on the throat and enclosing the auriculars and patch on the side of the head ; back chestnut-red, all the feathers broadly margined with greyish brown ; quills dark brown, with light-brown margins to the feathers ; the inner secondaries and wing-coverts slightly marked with dull chestnut ; rump and upper tail-coverts greyish brown or ashy brown ; tail dark brown, the feathers with slightly lighter margins ; throat and breast warm ochreous buff, gradually fading on the abdomen to pale buff ; flanks slightly striped with brown ; under tail-coverts with the centres of the feathers dull sooty brown ; bill blackish ; legs light brown ; iris brown, with a yellowish tinge. Total length about 6 inches ; culmen, 0·5 ; wing, 2·85 ; tail, 2·6 ; tarsus, 0·75.

"*Adult Female.*—(Kultuk, 20th April). Resembles the male, but is much duller in colour, the dark portions of the head brownish black, not black, and the under parts are buffy white instead of rich ochreous buff.

"*Male in winter.*—(Pekin, December). Differs from the male in spring in having the black on the crown duller, sullied and edged with brown, and the abdomen is whiter."—*Dresser, "Birds of Europe."*

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659 *bis.*—Corvus cornix, *Lin.*

Adult Female.—Above drab grey, with indistinct dusky shaft-stripes, the hind neck more decidedly grey ; wings and tail entirely purplish black, slightly glossed with steel green under certain lights ; upper tail-coverts purplish brown, with lighter grey edges ; head all round, foreneck, and centre of the chest glossy blue-black, the feathers lanceolate in shape ; sides of the neck drab grey, exactly like the remainder of the under surface ; thighs dusky black ; wing-coverts blue-black, the axillaries grey ; bill and legs black ; iris very dark brown. Total length 17 inches ; culmen, 2·4 ; wing, 12·5 ; tail, 7·8 ; tarsus, 2·2.

Adult Male—Similar to the female. Total length, 18 inches; culmen, 2·35; wing, 12·2; tail, 7·5; tarsus, 2·25.

Young—Similar to the adult, but the colour rather more dingy, and the drab somewhat shaded with a purplish lustre; hind neck decidedly more dusky than in the adult; upper tail-coverts dull blackish, without any perceptible grey margin; head also dull black, without lustre; the lanceolate plumes on the foreneck not developed.—*Sharpe's Catalogue, III.*

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668 *bis*.—Pica rustica, *Scop.*

I am myself disposed to agree in uniting the Afghan, Cashmere and Ladak Magpies, separated by Bonaparte as *bactriana*, with the European *rustica*. The descriptions however, which I subjoin, were taken from Ladak specimens.

Males.—Length, 19·75 to 21; tail from vent, 12 to 13·25; expanse, 24·75 to 25·5; wing, 8·3 to 8·75; foot, greatest length, 2·5; greatest width, 1·75; tarsus, 1·9; bill at front, straight from forehead to point, 1·4; wings when closed fall short of end of tail, by from 7·5 to 8·75.

Bill, legs, and feet black; head, neck, back, breast, upper and lower tail-coverts, winglets, and axillaries velvety black, slightly glossed with green on the back and blue on the breast; shafts of the feathers of the throat spiny and albescent, giving a finely streaked appearance to the throat; lesser coverts, except at the carpal joint, scapulars, rump, abdomen, sides, vent, and the whole of the inner webs of the primaries (except the extreme tips and a narrow margin on the inner edge towards the tips), pure white. I may mention that in the perfect, fully developed, wing in this species the fifth quill is generally longest. In the male, the fourth is 0·1 shorter, the third is 0·45; the second, 1·6; and the first (which is attenuated and falciform) is 1·4 shorter than the fifth; the sixth is a trifle shorter than the fourth; in the first and second the white of the inner web extends quite to the tip; in the third, fourth, and fifth to within from 0·23 to 0·3 of the tip; in the sixth, seventh, and eighth to within from 0·35 to 0·45; and in the ninth and tenth to within 0·25. This white is only visible on the eighth and ninth quills when the wing is closed, and then only as a narrow line, and not even this in some specimens. In a fine perfect tail the longest tail-feathers exceed the others by 7, 6, 5, 4, and 2·5 inches, respectively. The inner webs of all the lateral tail-feathers, except towards the tips, are glossless black; the outer webs of the laterals and both webs of

the central feathers, except the terminal, 1·5 to 2 inches, are brilliant metallic green, somewhat darker, but scarcely less resplendent than the speculum of the male Mallard (*Anas boschas*). To this succeeds a cuneiform band (the apex pointing towards the rump), which beginning in golden green shades into bright purple, and then into deep blue, beyond which the rest of the tip is a bluish green with, like the rest of the tail, the richest metallic lustre.

Some of the lesser coverts at the carpal joint are black, glossed with green; the median and greater primary coverts, and the outer webs and tips of all but the first three primaries are a metallic bluish green; the outer webs of the first three primaries are dusky or black, more or less glossed with the same colour as their neighbours; the inner webs of the secondaries and tertiaries, except quite the hindermost of the latter, are black; the outer webs of secondaries and tertiaries, and the inner webs of the hindermost of the latter, are metallic blue, more or less glossed with green; all the earlier secondaries with a conspicuous stripe of golden green just inside their margins for the basal two-thirds of their length.—*Hume*, "*Lahore to Yarkand.*"

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673 *bis*.—Cissa ornata, *Wagl.*

Adult.—General colour deep blue, shading off into bright cobalt on the rump and upper tail-coverts; head and neck all round, as well as the chest, chestnut; the rest of the under surface deep blue, shading off into brilliant cobalt on the abdomen and flanks; thighs ultramarine; wing-coverts rich ultramarine; the rest of the wing chestnut on the outer webs, blackish on the inner one; the innermost secondaries shaded with blue on the inner web; the first primary black, washed with blue externally; tail deep blue, more or less shaded with cobalt, broadly tipped with white, before which is a tolerably broad bar of black; under wing-coverts blue, shading off into grey on the innermost; the inner lining of the quills blackish, externally edged with chestnut, and inclining to rufous near the base of the inner web; bill red; bare skin round the eye crimson; feet coral red; iris light brown. Total length, 17 inches; culmen, 1·6; wing, 6·5; tail, 10·5; tarsus, 1·8.

Young.—All the colours duller than in the adult; the wing-coverts greyish black, with a slight wash of blue; lower back, rump, and under surface of body grey, with only a slight tinge of blue; bill blackish.—*Sharpe's Catalogue, III.*

679 *bis.*—Podoces humilis, *Hume.*

Dimensions:—	*Male.*	*Female.*	*Male.*
Length ...	... 7·5	... 7·	... 7·3
Tail ...	... 2·8	... 2·4	... ...
Wing ...	... 3·75	... 3·55	... 3·75
Bill at front	... 0·97	... 0·75	... 1·
Bill from gape	... 1·02	... 0·78	... 1·05
Tarsus ...	... 1·25	... 1·3	... 1·5

Description.—The bill, legs, and feet are black; the forehead, lores, and an indistinct streak over the forepart of the eye fulvous white; a dusky line through the lores to the eye; front, top, and back of the head, back, scapulars, and rump, a dull earthy brown, very faintly rufescent on the head; a broad yellowish white patch upon the nape; the four central tail feathers blackish brown, tipped and margined paler; lateral tail-feathers white, tipped and margined on their exterior webs with dingy fulvous; wings brown; the quills slightly darker brown, narrowly margined and tipped with paler brown; chin, cheeks, and ear-coverts, and entire lower parts, dingy fulvous white; the ear-coverts slightly more tinged with fulvous or pale fulvous brown and silky.

The female has more of a rufescent tinge on the back and scapulars than the male, and has the quills a darker hair brown; the tertiaries and some of the secondaries more distinctly margined with a pale rufescent brown. In both sexes the bastard wing appears to be a dark hair brown.

It will be noticed that the female is smaller in most of her dimensions, and has the bill conspicuously shorter.—*Hume*, "*Lahore to Yarkand.*"

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689 *quint.*—Sturnia senex, *Tem.*

It is assumed that this species, briefly described as below by Bonaparte, as from Bengal, is really the Ceylon species. Bonaparte says:—

"Back brownish; wings and tail bronzy black, (*i.e.*, black with a greenish metallic lustre); crown grey; below dull ashy white."

It is not common to get this species with the head entirely grey, though this is the typical plumage. Layard re-described the Ceylon bird under the name of *albofrontata*, thus:—

"Length about 8 inches; of closed wing, 4·5; tail, 3; bill to end of gape, 1·17; tarsi, 1. General colour of back, tail and

wings black, with a green gloss; forehead albescent; hinder feathers of crest brownish black, with albescent shafts. General colour of breast, throat, vent, and under tail-coverts albescent, the shafts of the feathers on the throat shining white."—*Layard.*

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693 *ter.*—Eulabes ptilogenys, *Blyth.*

This species has no bare skin on the cheek; but the occipital lappets are well developed, and the basal half of the lower mandible is black. Length of wing, 6 inches. Colouring as in the two Indian species, the smaller of which (that of the Peninsula of India) is also an inhabitant of Ceylon.—*Blyth,* "*Ibis,*" 1867.

This species may be readily distinguished by the yellow lappets at the back of the head, and the absence of any naked skin about the eye and cheeks.

Bill deep orange, base black; irides brown; lappets yellow; feet dull yellow.—*Holdsworth, P. Z. S.,* 1872.

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700 *bis.*—Munia kelaarti, *Blyth.*

Brown above, with pale stems to the feathers, nearly obsolete on the back, and passing to blackish on the forehead; wings, rump, and tail, throat and foreneck, with the cheeks, deep brown black; the small upper tail-coverts variegated with white, and the greater are largely tipped with fulvous; underparts variegated; the breast brown, and belly and lower tail-coverts black, the last having white medial streaks, and the rest of the underparts white subterminal bands, and the flank feathers a second, and some of them a third, white cross band in addition; bill livid bluish, and feet dark plumbeous. Wing, 2·12 inches.—*Blyth,* "*Ibis,*" 1867.

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720 *bis.*—Emberiza striolata, *Licht.*

Dimensions.—Male.—Length, 5·75 to 5·97; expanse, 9·37 to 9·75; tail from vent, 2·45 to 2·75; wing from carpal joint to tip of longest primary, 2 96 to 3·1; and when closed reaching within 1·1 to 1·3 of the end of the tail; foot, greatest length,

from 1 to 1·1; greatest width from ·63 to ·8; bill from front, ·36 to ·39; weight from ·45 to ·5 oz.

Female.—Length, 5·5 to 5·9; expanse, 9 to 9·5; tail from vent, 2·2 to 2·72; wing from carpal joint to tip of longest primary, 2·87 to 2·96; when closed reaching within 1·1 to 1·7 of the end of the tail; foot, greatest length, 1·1 to 1·17; greatest width, ·72 to ·8; bill from front, ·35 to ·38; weight from ·38 to 0·6 oz.

"*Description.*—The legs and feet were in some pale waxy yellow, in some dingy, in some fleshy yellow or yellowish fleshy; the feet, especially at the joints, more or less tinged with brownish; the claws rather pale brown; the bill had the upper mandible brown, in some blackish brown, the lower in some waxy, in some fleshy, and in some dingy yellow; irides brown.

The male has the forehead, top of the head, and nape greyish white, grey or white in different specimens, each feather with a conspicuous linear, median, black streak; a narrow pure white superciliary stripe starting from the base of the bill and extending behind the eye over the ear-coverts; the lores, and a moderately broad stripe directly behind the eye (and immediately under the white stripe), involving the upper portions of the ear-coverts, black; below this another greyish white stripe, involving the rest of the ear-coverts; below this, starting from the base of the lower mandible, a black stripe; below this, from the lower angle of the lower mandible, a greyish white stripe, which again is divided from the greyish white of the chin by a narrow inconspicuous dark streak.

"In the fresh birds in breeding plumage, which I am describing, all these streaks and stripes are as clearly and sharply defined as if painted; but at other seasons, and in stuffed specimens, they are not so clear; the whole of the back, scapulars, and tertials are hair brown, the former two very broadly, the latter more narrowly, margined with pale, more or less sandy or even rufous brown; in many specimens the darker median streaks of the back feathers are reduced to mere lines, and in some the rufous tinge on the upper back is well marked; the primaries and secondaries and their coverts are a mixture of hair brown and rich rufous (recalling in colour the wings of *Mirafra erythroptera*), the extent of each varying in different specimens, but the brown predominating in the earlier primaries and everywhere at the tips, and decreasing in extent in the hinder part of the wing and towards the bases of the feathers; the second primary, for instance, will be all brown, except a narrow rufous edging for the basal two-thirds of the outer web, and a broad rufous stripe on the margin of the inner web for the same distance, while one of the later secondaries will be all

rufous, except a narrow brown stripe running down the shaft till within one-third of the end of the feather, whence it gradually widens so as to occupy at the tip the whole of both webs; the rump and upper tail-coverts are much the same as the back, but in some specimens slightly more rufous than the lower back; and the longest of the coverts are in some specimens very narrowly tipped with very pale fulvous white; the tail is hair brown, darker than the brown portion of the quills; all the feathers externally very narrowly margined with pale rufous, except the external feather on each side, which has the whole outer web of that colour; the throat and upper breast are greyish white or grey, with more or less numerous and conspicuous black median stripes on the feathers. Specimens differ widely in this respect; in some the greyish white is a mere edging to dusky black feathers; in others only a few black spots and streaks peep out of an almost unbroken grey, and this among specimens killed at the same time and of apparently the same age; the lower breast and the whole lower parts of the body are pale greyish rufous, all the bases of the feathers (only seen if their tips are lifted) being a sort of bluish dusky; the axillaries, wing-lining, and, in fact, the whole lower surface of the wings, except the points of the quills, a pale delicate salmon rufous.

"The female only differs in being generally somewhat smaller, in having the white, grey, and black of the head, neck, throat, and breast much duller (and in many specimens overcast with a sandy or pale rufous shade), in the various stripes being less well marked, and in having the dark spots and streaks of the throat and breast almost obsolete."—*Hume*, "*Ibis*," 1869.

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720 *ter*.—Emberiza schoeniclus, *Lin*.

Adult Male in Summer.—(Archangel, 19th May). Entire head deep black; a white collar passes round the hind neck joining the white on the breast; a broad white stripe passes down from the base of the lower mandible, enclosing the black throat; hind neck below the collar deep grey, marked with blackish; back blackish; the feathers bordered with ochreous and bay; rump and upper tail-coverts iron-grey, marked with blackish grey; quills blackish, externally margined with ochreous bay; the wing-coverts more broadly margined with richer grey; the lesser wing-coverts almost entirely rich deep bay; underparts white; the flanks striped with dark grey, the black on the throat descending low, and forming a pointed gorget on

the breast; tail blackish; the central rectrices lighter and bordered with dull ochreous; the two outer feathers on each side obliquely marked with white on the terminal half; bill blackish brown; iris brown; legs dull brown. Total length about 6 inches; culmen, 0·4; height of bill at base, 0·2; wing, 3·3; tail, 2·9; tarsus, 0·8.

Adult Female in Summer.—(Smyrna, 27th March). Rather smaller than the male; crown and ear-coverts reddish brown, varied with dark brown; a white patch below the ear-coverts and a dull white line over the eye; throat dull white; the lower and upper breast striped with reddish brown and blackish; a broad black line passes from the base of the bill down each side of the throat; flanks striped with reddish brown; upper parts paler than in the male.

Adult Male in Winter.—(Ismid, November). The black on the head is almost entirely obscured by broad reddish brown margins to the feathers, and those on the throat by dull white; the white collar is obscured by ochreous grey; the breast and flanks are washed with creamy grey; and the feathers on the upper parts of the body have broad greyish ochreous margins, giving it a very pale appearance; bill dull horn; the lower mandible yellowish.

Young in first Autumn—Resembles the female, but are paler and duller in colour, and have the throat and breast marked with dark stripes; the line over the eye is yellowish; and the sides of the neck are dull ochreous, marked with brown.—*Dresser, "Birds of Europe."*

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728 *bis.*—Coccothraustes vulgaris, *Pall.*

Adult Male.—Forehead yellowish fawn colour, gradually becoming yellowish brown on the hind crown; sides of the head pale sandy ochre, with a brownish tinge; a narrow line round the base of the bill; lores, and a large patch covering the chin and upper throat, velvety black; hind neck ashy grey, this colour forming a collar, which extends to the sides of the neck; back and scapulars dark chestnut brown; rump fawn brown; quills bluish black, with a large patch of white on the inner web; the inner primaries and secondaries glossed with purple; the fifth and succeeding primaries peculiarly widened and hooked at the tip; secondaries square at the tip; innermost secondaries brownish fawn; primary coverts blackish; larger coverts white, except the innermost ones, which are fawn colour; lesser coverts chestnut brown; central rectrices greyish brown, tipped

with white; the remaining tail feathers blackish, with the terminal half of the inner web white; underparts pale greyish brown, with a rosy fawn-coloured tinge; centre of abdomen and under tail-coverts white; bill bluish; iris greyish; feet flesh colour. Total length about 7 inches; culmen, 0·85; wing, 3·9; tail, 2·5; tarsus, 0·9.

Adult Female.—Is duller in colour than the male; the black on the throat is less extensive; the white on the wing-coverts is tinged with greyish brown, and the outer webs of all but the innermost secondaries are ashy blue grey.

Young Male.—Crown, nape, and sides of the head yellowish brown; upper parts dull yellowish chestnut brown, the grey collar being absent; wings and tail as in the adult, but the white wing-coverts are intermixed with black; lores blackish brown; throat yellow, gradually becoming pale yellowish brown on the breast; flanks dull buffy white; rest of the underparts dull white; lower breast and flanks distinctly spotted and barred with dark brown; bill dull flesh; iris brownish grey; legs dirty brownish flesh.

Young Female.—Resembles the young male, but may be distinguished by being duller and having the outer webs of the secondaries blue grey.

Observations.—On comparing a series of specimens from various localities, I find that those from Northern Europe are duller in colour than others from the southern countries; and our British bird is perhaps the dullest of all, though now and then one sees a specimen nearly as richly coloured as any from the south of Europe. The Japanese Hawfinch has been considered by Temminck and Schlegel to be fairly distinguished from our European bird; but they must have compared specimens from Japan only with exceedingly dull North-European examples; for, on comparing those in the collection of Mr. Swinhoe, from China and Japan, with specimens from Spain and Italy, I can trace no difference either in tinge of colour or in any way whatever. In the winter dress the Hawfinch differs in having the beak dull flesh-coloured, and the colours of the plumage are duller and browner, the head has lost the bright yellowish fawn tinge and is browner, and the underparts have become greyer, the rosy fawn tinge having disappeared.—*Dresser*, "*Birds of Europe.*"

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738 *bis*.—Erythrospiza sanguinea, *Gould*.

Adult Male.—Forehead and centre of the crown to the nape dull blackish, the feathers with slightly lighter margins;

sides of the crown, throat and hind-neck sandy buff; back, scapulars, and lesser wing-coverts umber earth-brown; the feathers with lighter edges; quills and larger wing-coverts dark brown, externally, except at the tip, broadly margined with rich rose-red, tinged with carmine; inner secondaries tipped with white; upper tail-coverts rose pink; outer rectrices white with brown shafts; remaining tail-feathers dark brown, slightly tipped and marked with white; lores and feathers on the side of the head at the base of the bill carmine red; auriculars coloured like the sides of the neck, but marked with dark brown; throat and flanks like the back, but paler, the feathers with dark centres; centre of the breast, abdomen, under tail-coverts, and under wing-coverts white, slightly tinged with rose-colour; bill brownish yellow; legs light brown; iris dark brown. Total length about 5·75 inches; culmen, 0·52; wing, 4·15; tail, 2·5; tarsus, 0·78.

Adult Female.—Differs from the made in being duller in colour, the red portions of the plumage much paler, the feathers on the crown having much broader sandy buff margins, and the white on the underparts covering a rather larger area. Culmen, 0·5; wing, 3·8; tail, 2·35; tarsus, 0·75.—*Dresser, "Birds of Europe."*

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744 *bis.*—Propasser edwardsi, *Verr.*

Male with a general brownish tint above, richly glossed with crimson; lores, forehead, supercilia and cheeks pale silvery pink, the bases of the feathers brown; head above dark crimson, with blackish centres to the feathers; ear-coverts and sides of the neck duller crimson; the centres of the feathers broader and less distinct; back with broad dashes of dark earthy brown; the edges of the feathers pale, with a gloss of deep rose colour, approaching crimson; rump and upper tail-coverts nearly the same colour as the back, the dark centres of the feathers being less marked, and the paler margins with their crimson gloss broader; wing and tail-feathers earthy brown, with red brown exterior margins, and pale rosy spots on the tips of the outer webs of the wing-coverts, and of the last three quills; chin greyish; throat full rose colour, darker than the cheeks, with a silvery gloss; the breast is deeper and darker red, the feathers having pale rosy edges and narrow dark central stripes; abdomen pink, also with narrow streaks; under tail-coverts brown, edged with pink; thighs and flanks brown, slightly tinged here and there with pink; bill dusky; legs

brown. Wing, 3·15, 3·22; tail, 2·5, 2·6; tarsus, 0·92, 0·95; bill from gape, 0·52.

The female is earthy brown, the feathers of the upper parts with pale margins, and the wing-coverts and last three quills (tertiaries) with albescent tips to the outer webs; supercilia isabelline; rump with an ochraceous tinge; underparts fulvous, all the feathers with dark centres, broader on the breast, narrower on the abdomen, which has a rufescent tinge. Wing, 3·05, 3·15; tail 2·45, 2·5; tarsus, 0·95; bill from forehead, 0·47, 0·49.

Another bird, apparently a young male, is much more ochraceous than the female in colouring, especially on the underparts, sides of head and neck; the margins of the quills and tail feathers are olivaceous.

Another pair confirms the above description, except that the throat of the male is the same colour as the cheeks, instead of being rather deeper red.—*Blanford, J. A. S. B.*, 1871.

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750 *bis.*—Chrysomitris tibetana, *Hume.*

Although I have now received numbers of this species, I have none at hand here to describe, and so must fain reproduce the original description, which is of the female only.:—

Dimensions.—Length, 4″·75; wing, 2″·70; tail, 1″·9; tarsus, 0″·4; bill at front, 0″·35.

Description (only female obtained.)—Legs and feet brown; bill brown, fleshy on lower mandible. *Plumage:* Head, neck, back, and scapulars dingy olive-green, each feather with a dark brown central stripe, a long supercilium, continued backwards round the ear-coverts, and an ill-defined patch on the nape greenish yellow; ear-coverts brownish olive; lower parts pale yellow, albescent on the middle of the abdomen and towards the vent; the sides and flanks with dusky central streaks; lower tail-coverts pale yellow, each feather with a linear lanceolate blackish brown central streak; rump and upper tail-coverts greenish yellow, with traces of central dusky streaks; quills and tail blackish brown, edged exteriorly with greenish yellow; the primaries very narrowly margined at the tips, and the tail-feathers on the inner webs with greyish white.

This is a true Siskin, agreeing perfectly in shape of bill with the European *C. spinus.*—*Hume*, "*Ibis*," 1872, 107.

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751 *bis.*—Linaria brevirostris, *Gould.*

I reproduce Moore's original description and measurements. (P. Z. S., 1855, p. 217) :—

"Allied to *L. montium*, but distinguished from that species by its lighter colour, and the male having the pink colour on the rump paler; the axillaries and the basal edge of the inner webs of the primaries and secondaries pure white; the primaries and secondaries above are also broadly margined exteriorly with white; the female is also paler, and broadly edged, as in the male with white.

"Length, 5 inches; of the wing, 3·87; of tail, 2·62; central feathers, 0·5 less; bill to frontal plumes, 0·3; to gape, 0·5; tarsus, 0·6; centre toe and claw, 0·62."

This description agrees well enough with the Ladak, Sikhim, and Yarkand birds, but the dimensions seems in one respect scarcely reconcilable. None of the birds before me were measured in the flesh, but the wing, in which the greatest difference exists, as compared with Moore's dimensions, cannot have much changed in drying, besides which Moore's measurements must, like ours, have been taken from the dry skin. All the five birds before me are much about the same size.

Dimensions.—Length, (allowing for the contraction of the skins and carbolized specimens), 4·8 to 5 inches; wing, 3·1 to 3·2; tail, 2·4 to 2·5; centre feathers, 0·3 shorter; bill to frontal plumes, 0·29 to 0·35; to gape, 0·4 to 0·45; tarsus, 0·58 to 0·61; hind toe and claw, 0·5 to 0·58. The first four primaries seem to be almost the same length; in some the second, and in some the third are the longest, and in all the first is about 0·05 shorter than the longest.

Description.—The legs and feet are brown; the nails long and slender; the bill (apparently) fleshy yellow, brown at the tip.

Plumage.—The whole head, neck, back, wing-coverts, chin, throat, and breast pale earthy dingy fulvous, or pale sandy brown, in different specimens; the feathers of the crown, back, and breast centred darker; axillaries, wing-lining, abdomen, vent, and lower tail-coverts white, tinged slightly fulvous on the abdomen; sides and flanks with a few faint yellowish brown streaks; tail, (which is much forked, and has all the feathers, but specially the central ones, acutely pointed), dark brown, greyer on the laterals; all but the central feathers, with the major portions of the outer webs white, and with the inner webs margined white, very broadly in the exterior laterals and less broadly in each succeeding feather; primaries and secondaries hair brown, the former margined with pure white, most broady

in the fifth to the eighth, the latter tipped with somewhat yellowish-white; the inner webs of both more or less broadly margined towards their bases with white.

The rump is, in the *male*, pale vermilion pink; in the *female*, unicolorous with the back; the upper tail-coverts (which are rather long and very pointed), are in both sexes a darker brown than the back, and are edged with white.

I do not doubt that this is *Linota brevirostris*, and that Moore's measurement of the wing is erroneous, but if he is correct, our bird is distinct and might stand as *Linota montanella*.—*Hume*, "*Lahore to Yarkand.*"

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752 *bis*.—Leucosticte hæmatopygia, *Gould*.

Dimensions.—Length, 6·9 to 7·25; wing, 4·5 to 4·75; second primary longest; first, 0·1; second, 0·05; fourth, 0·25; fifth, 0·68; sixth, 1·0 inch shorter; tail from vent, 3·1 to 3·5; exterior tail feathers, 0·35 longer than central ones; tarsus, 0·8; mid-toe to root of claw, 0·65; its claw straight from root to point, 0·25; hind toe, similarly, 0·28; its claw, 0·38; bill at front, 0·45 to 0·48. (The females are slightly smaller than the males.)

Description.—Bill, legs, and feet black; irides brown.

Plumage.—The *male* has the forehead and lores deep, almost blackish brown; and the crown, cheeks, ear-coverts somewhat paler and the hind head paler still, the colour fading gradually; upper back again paler, and the feathers more or less margined with pale brown; the scapulars pale grey brown; the feathers with narrow ill-defined darker brown central streaks; mid-back pale greyish brown; rump similar, but each feather tipped narrowly with crimson; upper tail-coverts pale whity brown, margined paler; tail feathers very dark brown, the exterior laterals with the whole, and the penultimate with nearly the whole of the outer webs, yellowish white; all the rest of the feathers margined with white very narrowly, except on the outer web, towards their bases. Winglet, primaries and secondaries, and primary greater coverts dark brown, paler and greyer on the inner webs, and all margined exteriorly, the later primaries and the secondaries more broadly, and the rest very narrowly with white, or yellowish white; lesser and most of the median coverts whity brown; chin brown; throat and breast whity brown, becoming albescent on the abdomen, and nearly pure white on the lower tail-coverts. Some few of the feathers of these parts slightly darker shafted; wing-lining and axillaries slightly greyish white.

The *female* has the front of the head somewhat less dark, and has less of the crimson on the rump. She is also slightly smaller.—*Hume*, "*Lahore to Yarkand.*"

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752 *ter.*—Montifringilla adamsi, *Moore.*

Dimensions.—Length, 6·6 to 7; expanse, 12 to 12·5; wing, 4·1 to 4·5; second primary longest; first, 0·08; third, 0·1; fourth, 0·45; fifth, 0·75; sixth, 1·05 shorter; tail from vent, 2·6 to 2·85; exterior tail feathers, 0·2 shorter than central ones; expanse, 12·5 to 12·8; tarsus, 0·8; foot, greatest length, 1·5; greatest width, 1·0; mid-toe to root of claw, 0·6; its claw, straight from root to point, 0·17 to 0·25; hind toe similarly, 0·26; its claw, 0·25 to 0·4. In old birds the claws get worn down very short; bill at front, 0·48 to 0·52.

Description.—Legs, feet, and claws black; irides brown; bill, black in summer, orange yellow dusky on culmen and brown at tip in winter.

Plumage.—In summer the whole of the top of the head, nape, back, scapulars, and rump pale brown, darker and greyer on the head, paler and duller on the back of the neck; central upper tail-coverts blackish brown; lateral ones white; central tail feathers blackish brown, scarcely perceptibly margined with fawn; lateral tail feathers pure white, tipped for about 0·25 with blackish brown, very narrowly margined with fawn; lesser wing-coverts and tertiaries nearly unicolorous with the portions of the back they adjoin; greater coverts of primaries white, except the tips and bases, which are greyish brown; secondary greater coverts broadly tipped white; primaries and secondaries very dark brown, the earlier of the former narrowly margined on the outer webs with yellowish white, and the latter ones with a white spot on the inner webs near the tips; the first secondary with two-fifths of the inner web white; the last with half the inner and two-thirds of the outer webs of the same colour; intervening quills intermediate between these extremes in the amount of white; wing-lining, axillaries, and under tail-coverts pure white; rest of the lower surface yellowish white, tinged greyish on the throat, owing to the dark bases of the feathers showing partially through.

In the autumnal-plumaged freshly-moulted birds, the lores and feathers impending on the nostrils are whiter; the whole upper plumage has a faintly rufescent fawny tinge; the tertiaries and central tail feathers are broadly margined with rufescent fawn; the lateral upper tail-coverts, the lower ditto, and the

exterior margins of the lateral tail-feathers and some of the larger wing-coverts are tinged with the same colour, while the under surface is more decidedly yellowish white.—*Hume*, "*Lahore to Yarkand.*"

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752 *quat.*—Montifringilla ruficollis, *Blanf.*

Male.—Forehead whitish, passing into the rather pale umber brown of the head; supercilia white; lores and a line from them passing under the eye black; this line is continued posteriorly over the ear-coverts, and its colour changes to dark ferruginous; back umber brown, with broad central dusky streaks to the feathers; rump more ferruginous; wings brown; the first primary with the outer web white, the others with fulvous outer margins, all with white internal edges, and a broad white wing band, only visible on the expanded wing, formed by a large spot on the inner webs of all the primaries except the first four, and the whole basal portion of the inner web of the remaining quills, except the last three, which have broad fulvous borders; smaller wing-coverts mostly white; angle of the wing greyish; upper tail-coverts very long, pale umber, with a fulvous tinge; central tail-feathers and the tips of the remainder for about half an inch dark brown, with fulvous margins; basal portion of all the tail-feathers, except the central pair, pale ashy, with some white on both inner and outer webs between the grey portion and the brown tips, increasing in quantity on the outer feathers, and running up the external web which is entirely white in the outermost pair; sides of the head below the black eye-streak, chin and throat white, with two black lines, one from each side of the base of the lower mandible, running backwards and diverging; ear-coverts bright ferruginous; sides of the neck the same, but a little paler; the rufous tint forming a demi-collar, only interrupted for a very narrow space in front; remainder of the lower parts white, with an isabelline tinge; iris reddish brown; bill and legs black. Length, 6·0; wing, 3·75; tail, 2·35; tarsus, 0·82; bill at front, 0·42.

The female wants the whitish forehead and the rufescent tinge on the rump; the demi-collar is brown posteriorly, and, in the only specimen obtained, it is continuous round the front of the neck.

The dimensions given above were taken from a male before skinning. The following are taken from two other skins—a male and a female :—

	Wing.	Tail.	Tarsus.	Hind claw.	Bill from forehead.	Bill from gape.
Male,	3·63;	2·23;	0·85;	0·36;	0·42;	0·53
Female,	3·56;	2·1;	0·87;	0·32;	0·43;	0·54

—*Blanford, J. A. S. B.*

761 *ter.*—Melanocorypha bimaculata, *Menét.*

Dimensions.—(The males are larger than the females). Length, 7·06 to 8; expanse, 13·13 to 15·25; wing, 4·2 to 4·8; the second primary is the longest, the first is sub-equal to 0·2 shorter; the third is from 0·13 to 0·3 shorter; and the fourth from 0·5 to 0·7 shorter; tail from vent from 2·12 to 2·4; tarsus, 1 to 1·1; bill, straight from forehead to point, 0·6 to 0·7; from gape, 0·7 to 0·9; height at front, 0·2 to 0·25; the closed wings fall short of end of tail by from 0·38 to 0·87. Weight from 1·25 oz. to 2·13 oz.

Description.—Legs and feet fleshy or yellowish fleshy, more or less dusky at joints; claws dusky; irides brown, in some light brown; bill horny brown, or blackish horny on upper mandible; lower mandible greenish horny, changing to yellow at base and gape.—*Hume, "Lahore to Yarkand."*

Adult Male in Summer Plumage.—Above fulvous brown, the centres of the plumes much darker brown, giving a somewhat mottled appearance, all the feathers being edged with fulvous, especially on the hinder part of the neck and centre of the back; wing-coverts coloured like the back, but a little more rufous; plainly edged with fulvous, less distinct on the greater coverts; quills brown, with a slight shade of ashy grey on the outer webs; all the feathers more or less narrowly edged with fulvous, but none of the feathers tipped with white; tail dark brown, with conspicuous white tips to all the feathers, except the two central ones; all the rectrices edged more or less broadly with fulvous; lores and a distinct eyebrow whitish; cheeks fulvous-white, with a slight mottling of rufous; ear-coverts entirely rufous; throat white; rest of the under surface dull white, the upper part of the breast and flanks rufous; a pectoral gorget black, extending right across the lower part of the throat; on the upper part of the breast are a few indistinct mottled lines below the black gorget; under tail-coverts whitish; under wing-coverts entirely greyish brown; bill horn brown; the under mandible yellowish; feet fleshy yellow; iris dark brown.

Observations.—Some specimens are much greyer than others; others again are more rufous; some are more white on the belly, and have the breast much obscured, so that the pectoral gorget is scarcely discernible. This last dress seems to be the winter plumage.

Young.—Similar to the adult, but more rufous in the centre of the back; the gorget more obscure, and the stripes on the upper breast more indistinct; the bill likewise seems to be more yellow.—*Sharpe and Dresser, "Birds of Europe."*

763.—Otocoris pencillata, *Gould.*

It appears to me, as already noted, S. F., I., 529, that *Otocoris pencillata*, Gould, and *O. longirostris*, Moore, Nos. 763 and 764 of Jerdon, are quite inseparable. All that can be said is, that the birds from the high hilly country have somewhat longer bills and are, perhaps, slightly larger birds than those of the flat country of Yarkand and westwards.

I considered (S. F., I., 36)—and Mr. Blanford concurred in this view (*tom. cit*, 417)—that his *O. elwesi* was identical with *pencillata*, *i.e.*, *longirostris*.

Mr. Dresser, however, in his "Birds of Europe," Pt. XXXIII., Art. *O. bilopha*, considers Mr. Blanford's bird to be identical with *O. alpestris*, which should, according to this view, be included in our avifauna.

I do not agree with Mr. Dresser; if *O. alpestris* is separable from *O. pencillata*, then it is to the latter and not the former that *O. elwesi* should be assigned.

There is no good description in Jerdon of either *pencillata* or *longirostris*, and I therefore reproduce from "Lahore to Yarkand" my description of the species founded on a large series of Himalayan and Yarkand specimens.

Dimensions.—Male.—Length, 8·5; expanse, 14·5; wing, 5·2; first three primaries sub-equal; first slightly longest; fourth, 0·1; fifth, 0·55; sixth, 1·0 shorter than first; tail from vent, 3·75; bill at front, 0·55; from gape, 0·8; tarsus, 0·92; mid-toe to root of claw, 0·55; its claw, straight from root to point, 0·35; hind toe to root of claw, 0·31; its claw, 0·55.

Female.—Length, 7; wing, 4·5; proportions of primaries, similar to those of the male; tail from vent, 2·75 to 3·; bill at front, 0·5; from gape, 0·65; tarsus, 0·8; mid-toe to root of claw, 0·46; its claw straight from root to point, 0·27; hind toe, 0·3; its claw, 0·37.

Description.—Bill, upper mandible and tip of lower, blackish brown; rest of lower mandible bluish, tinged yellow towards the base.

Plumage.—Male, fresh moulted, killed 9th October.—Lores, narrow band on the forehead, a broad cheek stripe running partly down the sides of the neck, the whole of the upper breast, a bar across the front of the crown, and the streak on each side of the crown (some of the feathers of which are linear, pointed and fully 0·6 in length), and a small streak under the eye joining into the cheek stripe, velvet black, the bar on the front of the crown above being partly obscured owing to the tips of the feathers being vinaceous ashy; forehead, between the two black bands, a broad streak over the eye extending

nearly to the nape, chin, throat, and a border round the black cheek stripe, abdomen, vent, lower tail-coverts, axillaries, wing-lining, nearly the whole of the outer web of the exterior laterals, and a portion of those of the penultimate ones, and nearly the whole of the outer web of the first primary, pure white; lower breast, sides, and flanks white, tinged with very pale slightly vinaceous greyish brown; centre of crown of head, nape, back and sides of the neck, back and scapulars, pale greyish brown; some of the feathers inconspicuously and narrowly darker centred, and the nape and back, and sides of the neck distinctly tinged with vinaceous; rump and upper tail-coverts pale fulvous fawn; the upper tail-coverts somewhat conspicuously brown shafted; tail, central feathers hair brown, conspicuously and broadly margined with fulvous fawn, paling towards the edges; lateral tail-feathers black, except, as already described, faintly margined towards the tips with fulvous fawn; quills greyish brown; third, fourth, and fifth primaries blackish towards the tips; outer web of first primary white, other primaries narrowly margined white and tipped with fulvous fawn; secondaries narrowly margined and tipped with white; tertiaries somewhat darker brown at the base, but margined and tipped with fulvous fawn like the central tail-feathers; primary greater coverts and lesser coverts more or less broadly tipped and margined with grey brown, tinged with vinaceous.

Adult Female.—Killed on the same date.—Similar to male, but with the faint striations of the back of neck and back, &c., almost entirely obsolete, brighter vinaceous tinge on crown, nape, back, and coverts, less black on the breast, more white on the two outer tail-feathers, and the central tail-feathers nearly wholly rufous fawn.

Young Male.—Killed same date.—Differs from the adult in having all the lateral tail-feathers more or less conspicuously tipped with white; the breast white, surmounted by only a narrow line of black; the chin, throat, and eye-streak tinged with yellow; the cheek stripe, and lateral crown stripes, yellowish white; each feather with one or more narrow dusky black bars towards the tips; the vinaceous tinge on the wing-coverts is even stronger than on those of either of the adults.

Young Female.—Killed the same date.—Wants the vinaceous tinge of the plumage almost entirely; like the young male has only a narrow black band across the upper breast; the frontal black band, as well as the black bands across the front of the crown and on either side of it, are wanting, and the cheek stripe and lores, though partly black, have all the feathers broadly tipped with yellowish white; the quills are paler

coloured than in the adult, and the central tail-feathers may be described as very pale buffy fawn, with a narrow brown shaft stripe.

A female killed in August is in such bleached and abraded plumage that it would scarcely be recognised as belonging to the same species; the lores and the cheek stripe and the pectoral band are dusky brown; a dingy white line runs from the nostrils over the eyes; and the whole crown and occiput is dusky, only just the extreme tips of the feathers retaining the original grey brown shade; the lower breast and abdomen are mingled dusky and fulvous white, owing to the bases of the feathers showing through; the back of the neck and back is pale sandy; the feathers somewhat darker centred, while the upper tail-coverts and central feathers are dull pale rufescent sandy. I have never obtained the bird in full breeding plumage, but I should imagine that it did not differ greatly from the freshly-moulted October plumage.—*Hume*, "*Lahore to Yarkand.*"

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780 *ter.*—Carpophaga pusilla, *Blyth.*

Although I do not in the least believe in the distinctness of this or *C. sylvatica*, Tick., from the widely-spread *C. ænea*, Lin., I yet reproduce, for easy reference, Blyth's original very brief remarks about this supposed southern species:—

"Like *C. sylvatica* (vel *ænea* of India), but much smaller, and the nape very rufescent. Length of wing, 8·25 inches; of tail, 5·5; Nilgiris."—*Blyth.*

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786 *bis.*—Palumbus torringtoni, *Kelaart.*

This differs from *P. elphinstoni* of South India in having the back and wings plain dark slaty, without a trace of ruddy margining to the feathers; the head, neck, and underparts are also tinged with vinaceous more than with green; and the reddish-purple gloss (especially about the lower part of the neck behind, where it contrasts abruptly with the ashy of the back) is considerably more brilliant. Sexes nearly alike.—*Blyth*, "*Ibis*," 1867.

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802 *bis*.—Syrrhaptes tibetanus, *Gould*.

Dimensions.—*Male*.—Length, 19; tail from vent, 8·5; expanse, 30; wing, 10; second primary the longest; first primary, 2·5; third primary, 0·35; fourth primary, 1 shorter. Wings, when closed, reach to within 4·5 of end of tail; the longest, namely the central tail-feathers, exceed shortest by 4·5 to 5. The females are somewhat smaller, and have the elongated central tail-feathers considerably less developed.

Description.—Bill and nails bluish horny; soles whitish.

Plumage.—Lores and forehead whitish, faintly tinged with buff and dark shafted; crown, occiput, and nape white, closely and somewhat irregularly but closely barred with blackish brown; chin, throat, cheeks, ear-coverts, sides and front of neck, and a narrow band across the back of the neck (not shown in Gould's figure, but very conspicuous in adult male) bright buffy yellow in the breeding season, white, tinged with the same colour, in the winter; lower part of the back of the neck, upper back and upper breast white, slightly tinged vinaceous, with close regular narrow transverse blackish brown bars; the whole mantle, including the scapulars and tertiaries, vinaceous fawn colour, brightening to rufous buff along its (the mantle's) exterior margin, with large conspicuous black blotches on the inner webs of the scapulars, and everywhere excessively finely vermiculated with blackish brown, which is scarcely perceptible without close examination on the upper back and towards the tips of the elongated tertials; the lower back and rump are white, very beautifully vermiculated with dark, somewhat greyish brown; upper tail-coverts similar, but the ground colour tinged with rufous fawn; central tail feathers with the basal portions similar to the upper tail-coverts, but with a slightly more vinaceous tinge, and with the elongated attenuated portions, which in fine males are five inches in length, black, with a slaty bloom on them; primaries and their greater coverts black, with a slaty bloom on them towards the tips; the hinder ones with a more or less extensive buffy white patch on the inner web at the tip; secondaries black, but with more or less of the outer webs (less in the earlier—more in the later ones) similar in colour to the tertiaries; lateral tail-feathers bright rufous buff, tipped with pure white, and with several widely separated, moderately broad, more or less cuneiform transverse black bars; lower breast grey; abdomen, sides, flanks, vent, tibial and tarsal plumes, and shortest lower tail-coverts white; the leg feathers sometimes slightly tinged with fulvous and with traces of narrow transverse barrings on the tibia.

Female.—Much resembles the male, but differs in the much greater extent of pencilling and barring; the whole mantle and the whole of the breast (not merely the upper breast as in the male) is distinctly and conspicuously lineated with narrow zig-zaggy dark brown lines; the mantle of the male is doubtless, when closely looked into, excessively finely vermiculated with blackish grey or greyish brown, but in the female these markings are very conspicuous, and on the longer scapulars and tertials are further apart, and fully as distinctly marked as those on the upper breast of the male; the linear elongated portion of the central tail-feathers in the female is not above three inches in length. The bill, too, is decidedly smaller.—*Hume*, "*Lahore to Yarkand.*"

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803 *sex.*—Polyplectron germaini, *Elliot.*

I formerly mentioned (S. F., V., 118,) that there were some grounds for thinking it possible that this species might occur within our limits. I have been able to learn nothing further since this, but still think it advisable to give a very brief description of it. It is most like *P. tibetanum*, but it has no white throat, and the bare orbital skin is bright crimson and not pale fleshy pink as in *tibetanum*. Mr. Elliot says, (I cannot praise his description by the way):—

"This species is readily distinguished from all the members of this genus, and may be described as follows:—General colour blackish brown, irregularly spotted with light brown; head and back part of the neck black, each feather barred with white; back, wings, and tail-coverts with metallic spots, in some lights of a dark lustrous green, in others of a rich purple; primaries dark brown; upper mandible black, lower horn-colour; feet black."

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803 *sept.*—Crossoptilon tibetanum, *Hodgs.*

"The length, from the tip of the bill to the tip of the tail, is from 38 to 40 inches, of which the bill is 1·62, and the tail 19 to 20 inches.

"A closed wing measures 12·5 inches; the tarsus, 4·12; and the central toe, 2·62; the bill has the same length, whether taken from the gape or from the front, and is three-eighths of an inch shorter than the head, the latter being two inches complete;

the bill is very strong with the general characters of that of *Lophophorus*, the tomial edge of the upper mandible being even more scarped, and furnished with a small tooth-like festoon; its base is nude; the head and throat are clad in feathers and simple, but the entire cheeks, from nostril to occiput, are void of plumes, being occupied by the typical red and papillated skin of the Pheasant tribe, and in all that extent of development, which more especially characterises the Indian Kaliches (*leucomelanus*), and the painted and Amherstian species of China. Like the true Pheasant (*colchicus*), our bird has no crest of any kind, though the feathers occupying the top of the head are of a peculiar kind, being short, velvety, thick set, erect, with their slightly discomposed and square points recurved a little to the front.

"The wings have no peculiarity; they are short, stiff, bowed, and rounded as usual, the sixth feather being the longest. The very ample tail is most remarkable for the breadth of the plumes. Its length is moderate, nor is there any of the extra elongation and narrowing of the central feathers which characterise the tropical Pheasants. There are 18 caudal plumes, regularly and considerbly gradated throughout, and the general form of the tail is broadly convex, without any symptom of the Galline compression and curve; the legs and feet are well adapted for rapid movement on the ground, and have a form and proportion very similar to those of *leucomelanus* and *satyrus;* the tarsi are nude, and biscaled before the hind, but the hinder scales are smaller than the fore ones; the sides of the tarsi are papillo-reticulate; the spur is sharp and curved; the lateral toes are equal, the central long, and the hind short and raised, as usual; the nails are long, and possess but little curve.

"It remains only to notice the plumage of the bird, which constitutes indeed its most remarkable feature. The plumage, then, upon the whole body is very ample, but not at all pointed, unglossed, and wholly dishevelled, so as to remind one of the Struthious family.

"It is distinguished amongst all its congeners by its ample fringe-like plumage, the dishevelled quality of which is communicated even to the central tail-feathers, the very broad and equal webs of which are quite separated, and curve outwards the sides, besides being adorned by a fine gloss.

"The general colour of our bird is bluish-hoary, paler and tinted yellow on the lower surface; crown of the head black and velvety; great alar and caudal plumes dusky or black, more or less glossed with changeable blue, especially the tail-feathers; legs and cheek-pieces intense sanguine; bill dull ochreous red; iris brown."—*Hodgson, J. A. S. B.*

808 *bis.*—Pucrasia castanea, *Gould.*

808 *ter.*—Pucrasia nipalensis, *Gould.*

In *macrolopha* the chestnut of the lower throat and middle of breast, &c., does not extend at all *round* the neck; the feathers of the back and sides of the neck, interscapulary region, sides of the breast and body and flanks, are grey, with narrow central black stripes.

In *nipalensis* (I speak on the strength of several specimens recently procured for me in Nipal by Dr. Scully), all these feathers are black, with only narrow grey edges, many of them, especially on the sides and flanks, with narrow reddish shaft lines. In this species also the red does not go round the neck. Both sexes are darker and somewhat smaller than *macrolopha*.

In *castanea* the feathers of the flanks *are apparently* much more like those of *nipalensis*, but there is a much greater extent of chestnut on the breast and belly, and the chestnut goes all round the base of the neck.

In *nipalensis* the whole of the feathers of the lower back, rump and upper tail-coverts are broadly centred with black, but in *macrolopha* they are *mostly* grey, paling towards the margins, and this appears to be the case also in *castanea*.

I have never yet been able to obtain any typical specimens of the so-called *castanea*. (I retain Mr. Gould's name for reasons fully explained, S. F., VII., 124.

The bird figured as such by Mr. Elliot is not, in my opinion, the true *castanea*, but an intermediate form. No doubt, Mr. Elliot says, that he purchased the type of *P. castanea* from Mr. Gould, but he is mistaken, since Mr. Gould's types were specimens collected in Kafristan by Griffiths, at that time, and probably still, in the Indian Museum.—*Hume*, "*Game Birds of India.*"

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810 *bis.*—Euplocamus leucomelanus, *Lath.*

The Nipal Kallege, to which we may probably apply Latham's name, is a well-marked and perfectly distinct species. Blyth and others, not properly informed as to the facts, have talked of it as a hybrid, but it is quite as distinct as any Pheasant of the group.

No detailed description is needed. The subjoined table of our four Kalleges, which I extract from the "Text of the Game

Birds," will suffice to enable my readers to identify at a glance the males of any one of the four :—

	Crest.	*Breast.*	*Rump and upper tail-coverts.*
E. albocristatus ♂	white ;	greyish white, sharp-pointed feathers ;	feathers broadly tipped white.
E. leucomelanus ♂	black ;	ditto ;	narrowly ditto.
E. melanotus ♂	ditto ;	ditto ;	black.
E. horsefieldi ♂	ditto ;	black, rounded feathers ;	broadly tipped white.

—*Hume, "Game Birds of India."*

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812 *bis.*—Gallus lafayetti, *Less.*

Male.—Length, 29 ; wing, 9·2 ; tail from vent, 14·5 ; tarsus, 3·25.

Female.—Length, 15 ; wing, 7·2 ; tail from vent, 6·0 ; tarsus, 2·5.

Male.—Back of the head reddish ; neck covered with long hackles, black in the centre, golden on the margins ; feathers on upper part of back black, in centre dark, red on the margins ; feathers of the rump deep red at base, with heart-shaped termination deep metallic blue with purple reflections ; long slender feathers falling over the sides of rump, purplish black in centre, deep red on the margins ; secondaries bluish black ; primaries brownish black ; greater wing-coverts deep reddish chestnut, with reddish brown centres ; underparts rich glossy red, with deep chestnut in the centre of the feathers ; abdomen and under tail-coverts black ; thighs black ; upper tail-coverts metallic blue, with green and purple reflections ; central tail-feathers long and curving outwards, black, with blue reflections ; the rest of the tail brownish-black ; comb yellow, with red edge ; naked skin of face, wattles, and throat red, this last separated from the red feathers of the breast by a line of metallic blue feathers, some of them margined with deep chestnut ; bill horn-colour ; legs and feet flesh-colour.

Female.—Head and neck brown ; upper part of neck brown, with black irregular lines on the outer portions of feathers ; centres yellow ; upper parts yellowish brown, finely vermiculated with black ; primaries dark brown ; secondaries dark buff, barred irregularly with broad black lines. Upper parts of breast like the back, the feathers having a rather broad central streak of yellowish ; feathers of underparts black at the base, yellowish white on the tips ; tail reddish brown, mottled with

black; bill dark brown; legs and feet flesh-colour.—*Elliot*, "*Phasianidæ*."

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815 *bis*.—Galloperdix bicalcaratus, *Penn*.

The male has the feathers of the head black, with a fine line of white down the centre of each, becoming almost obsolete on the centre of the crown; feathers of the back of the neck black, with a line of white down the centre of each, commencing in a fine point at the base of the feather, gradually but slightly increasing in breadth towards and ending near the apex; feathers of the shoulders and scapularies deep chestnut, freckled with black, and having a broad oblong mark of black down the centre, within which is a lengthened white line as on the neck; lower part of the back deep chestnut, minutely freckled with black at the tip of each feather; lesser wing-coverts black, bordered with chestnut at the base and a small drop-like spot of buffy white near the tip; primaries brown; remainder of the wing deep chestnut, freckled with black, and at the tips of the greater coverts a pear-shaped mark of black, within which is a similar mark of white; upper and under tail-coverts black; tail rich purplish black; feathers of the throat, breast and abdomen black, with a pear-shaped mark of white near the tip, which mark becomes more elongated as the feathers proceed downwards, until on the flanks they assume a similar, but bolder, form than the lines on the back of the neck; on the lower part of the abdomen and thighs they again become of a more rounded form, but are much less conspicuous; bill and orbits beautiful red; irides dark brown; legs and feet red.

The female has the entire plumage deep chestnut, paler on the under surface and minutely freckled with brown, especially on the secondaries and upper tail-coverts; tail purplish black; bill, orbits, eyes, legs and feet as in the male, but not quite so rich in colour.—*Gould*, "*B. of As.*"

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816 *bis*—Tetraogallus tibetanus, *Gould*.

Males.—Length, 19 to 21·5; expanse, 30 to 32·5; wing, 10·0 to 10·6; tail from vent, 6·5 to 7·4; tarsus, 2·1 to 2·36; bill from gape, 1·3 to 1·4.

Females.—Length, 18 to 20; expanse, 29 to 31·5; wing, 9·55 to 10·2; tail from vent, 6·4 to 7·0; tarsus, 2·1 to 2·2; bill from gape, 1·15 to 1·3.

The irides are brown, or reddish brown, (orbits red); the legs and feet vary in both sexes, as far as I can make out, from orange, through every stage, to almost coral red—possibly according to season, more probably according to age. The bill is dull red to orange horny in the male, often dusky about the base, (a sign I fancy of non-age) and greenish, or yellowish green in the female, always apparently dusky towards the base, and paler and yellower on the lower mandible.

Male.—Forehead and broad line from the nostrils through the lores and eyes, and over the ear-coverts, buffy white; rest of the top of head, occiput, nape, cheeks, side of the head and neck, dull bluish grey, very freely and inconspicuously vermiculated with blackish brown, and with specks and spots of fulvous white; chin, and a broad line down the centre of the throat, slightly fulvous white; a broad irregular band round the base of the neck in front, grey; the feathers vermiculated with dark brown, and spotted with slightly vinaceous fawn; below this, the upper breast, white; then over the middle of the breast a broad irregular band of greyish fawn-coloured feathers, all finely vermiculated with dark grey or blackish brown.

Prejevalsky says: "A male from Kansu has under the throat a large slate-coloured spot, not an uninterrupted cross band running parallel to the breast band, as described by Hume, but not marked at all by Gould."

Gould, I expect, figured from an indifferent specimen, or the birds may be variable in this respect, * but I have never yet seen any male entirely wanting this throat band. Of five adult males before me, four have the band continuous, and one has it interrupted, as described by Prejevalsky, *but* this has no spurs.

Below the pectoral band the lower breast and abdomen are white, generally with a faint creamy or vinaceous tinge, each feather laterally margined with black; the vent feathers are fulvous white; the lower tail-coverts are mingled black and white, the white being chiefly confined to a broad stripe from the tip running upwards, and narrowing as it approaches the centre of the feather; flanks and tibial plumes, which are much developed, very pale, vinaceous fawn or white, tinged vinaceous, with a central linear or lanceolate linear stripe of blackish grey

* Hodgson figures a specimen, not only without the *throat* band, but with only a trace, just a few scattered feathers, of the breast band.

vermiculations. Base of the neck behind and back very pale grey, with a faint pinkish tinge very finely vermiculated with blackish brown; most of the feathers of the upper back tinged towards their margins with a dingy fulvous shade, and those of the lower back distinctly margined with pale buff; the rump and upper tail-coverts are very similar to the upper back, except that they are pervaded with a rich vinaceous tinge; central tail-feathers of a nearly uniform dull vinaceous pink, closely and strongly vermiculated with blackish brown; lateral tail-feathers dull greyish black, tipped with pale vinaceous rufous, and more or less variegated with the same colour on the outer webs towards the bases; the lesser wing-coverts resemble the upper back. The scapulars, tertiaries, and the coverts adjoining the scapulars are also very similar to the upper back, but the ground colour is more buffy, the vermiculations more strongly marked, and the feathers are broadly margined with a somewhat rufous buff; the primaries are pure French grey, the earlier ones narrowly, the later more broadly tipped with white, and more or less finely powdered with the same colour on the margins of the outer webs; the secondaries are somewhat similar, but much more broadly tipped with white, and have the whole of the outer portions of the outer webs above the tips coarsely speckled and spotted with buffy white; the winglet is a slaty grey, the feathers more or less finely powdered, and some of them margined towards the tips with yellowish white.

The female has only a central stripe down the throat white, and has the whole cheeks, sides, and front of the neck and breast, as far down as the grey band extends in the male, finely mottled, vermiculated and variegated brown and rufous buff, the brown being much darker on the sides of the neck and in front at its base, and becoming greyer towards where this cross patch ends.—*Hume*, "*Lahore to Yarkand*," *and* "*Game Birds of India*."

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823 *bis*.—Perdix hodgsoniæ, *Hodgs*.

"To General Jung Bahadoor, Prime Minister of Nepal, I am indebted for the gift of a fine sample of what appears to me decidedly a new species, and probably also a new type of the Partridge group of birds. The General, in his recent military expedition into Tibet, procured the bird alive, but it died at Kathmandu, and he sent me the spoils in very fine condition.

"**Perdicinæ.**

GENUS SACFA MIHI.

Sakpha of the Tibetans.

S. hodgsoniæ, *mihi*.

"The essential characters of the genus or sub-genus are as follows:—Bill strong, with a heavy overlying upper mandible, scarped along the cutting edges. Nares subvertical and opening towards the head; wings and tail longer, and less bowed and gradated, and stronger than in *Perdix*; but not so long or acuminate as in *Lerwa*, and about equal to *Francolinus*.

"Wings with 3, 4, 5, quills longest and nearly equal, 1, 2 not much gradated, 1st only ½ inch less than the longest.

"Tail 16, rounded, firm.

"Tarsi moderate, equal to the longest toe and nail; nude, biscaled in front, no spur?

"Lateral toes sub-equal and furnished with the usual basal membrane; nails blunt, scooped inferiorly and having a salient margin all round.

"Orbits subnude, as in *Arboricola*.

"This fine species is denominated *Sakpha* by the Thibetans. It was obtained in the western part of the province of Tsang. I know nothing of its habits. My sample is a female, and therefore the peculiar character of the bill, in this sex very marked, must be more so in the males, and resembles, in fact, that organ in *Lophophorus*, or the monâl. For the same reason, that is, my sample being a female, I am doubtful as to the presence or absence of the spur on the legs, but it is probably absent or but slightly developed.

"The other members have been sufficiently described in the generic character.

"The colours are as follows:—

"Bill and legs horn green; orbital skin reddish; above transversely marked with black, rufous and chestnut in frequent bars, the black being more developed on the wings, and the chestnut on the flanks, where indeed the black nearly disappears, while on the belly it is so much developed as to constitute the main and almost only colour; neck, above and laterally, and all the lateral tail-feathers, full unmarked chestnut; cheeks, throat and breast, luteous or albescent buff. A black zone round the throat from the cap, and a black patch below the eye.

"The size is as follows:—

"Tip of bill to tip of tail, 13·0; expanse of wings, 18·0; a closed wing, 6·12; bill to gape, 0·87; bill to brow, 0·75; tail, 4·0; tarsi, 1·75; central toe and nail, 1·5; weight, 1lb.

"In conclusion I may remark that the bird has much of the character of *Caccabis*, whilst in colours it resembles greatly the Grey Partridge of India."—*Hodgson, J. A. S. B.*, 1856, 165.

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827 *bis.*—Ophrysia superciliosa, *Gray.*

Male.—Lores, chin, throat, and sides of the face and ear-coverts deep black; forehead, a broad stripe above and behind the eye silvery grey, each feather on the forehead with a still lighter shaft, above the light stripe a second one of black; the centre of the hinder part of the head and nape light greyish brown; upper surface, tail and under surface olive, tinged with grey on the breast and abdomen; all the feathers of both surfaces margined on each side with a line of black; under tail-coverts black, every feather with a small tooth-like mark of white on each side near the base, a similar but larger mark about two-thirds from the base, and two coalescing oval spots of white at the tips; bill reddish; tarsi brown. Total length, 9 inches; bill, 0·62; wing, 3·5; tail, 2·75; tarsi, 1·33.

Female.—General tint cinnamon brown, with a rufous edging to each feather; those of the upper surface with light-coloured shafts and triangular mark of dull black on the inner web near the tip, preceded by a small mark of the same hue as the shafts; on the under surface the dark mark occupies the centre of the tip of each feather, and is of a lanceolate form; the throat is pale greyish cinnamon, as is also the head, where there is an indication of the superciliary stripe seen in the male; the feathers of the crown and behind the eye being somewhat greyer than the others, and having polished shafts; on each side of the nape a dark stripe as in the male; tail irregularly barred with black; under tail-coverts dark cinnamon, with a stripe of black in the centre, between which and the margin is a stripe on each side, which unites with a large patch of the same hue near the tip.—*Gould*, "*B. of Asia.*"

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836 *bis.*—Otis tarda, *Lin.*

Male.—The bill is pale yellowish brown, darker on the ridge; the iris hazel; the feet light brown, as are the claws; the head and upper neck all round are light greyish-blue; on the upper part of the head is a longitudinal brown band; the

elongated moustachial feathers white; the lower part of the neck anteriorly is pale yellowish red; the forepart of the breast pale greyish blue, fading into white, of which colour are the other lower parts, excepting the sides of the lower neck and body, which are light yellowish red, barred with black, each feather having two subterminal unequal bars, and generally several spots; the tail feathers are similar, but tipped with white, and having the base of that colour; the outer wing-coverts, secondary coverts, and inner secondary quills are white, the former tinged with grey; the primary quills brownish black, with the shafts white.

Length to end of tail from 40 to 48 inches.

Female.—The female is much inferior in size to the male, generally weighing only ten or twelve pounds; there are no elongated feathers on the sides of the head; the bare parts are coloured as in the male; the upper part of the head is yellowish red, barred with black; the foreneck greyish blue, without any red at its lower part; the colouring of the other parts as in the male; but the black markings on the back and tail more numerous.

Length to end of tail about 35 inches.—*Macgillivray, Vol. IV.*, 31.

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836 *ter.*—Otis tetrax, *Lin.*

Male, in Summer.—The bill is brown, greyish blue at the base, with the ridge and tips dusky; the irides reddish yellow; feet light brownish grey; scutella of toes darker; claws dusky; the upper part of the head and the nape are pale reddish yellow, thickly variegated with longitudinal and transverse brownish black markings; the sides of the head and the throat to the length of two inches greyish blue, with an inferior black margin, succeeded by a narrow ring of white, that colour extending more than an inch downwards in front, in a pointed form. The middle of the neck, all round, for the length of two inches and a half is deep black, that colour being succeeded below by a half collar of white and another of black; all the lower parts are white, excepting some feathers on the fore and lateral parts of the breast, which are similar to those of the back. The upper parts, including the back, scapulars, many of the small wing-coverts, with the inner secondaries and their coverts, may be described as light reddish yellow, beautifully undulated transversely with brownish black; the upper tail-coverts with white in place of yellow; on the wing is a broad band of white, com-

mencing at the carpal joint, including the alula, eight of the outer secondary quills and their coverts; the primary quill- and their coverts are white at the base, chocolate brown mixes with grey towards the end, with the tip white; that colour bed coming gradually more extended on the inner primaries, of which the tenth has only a narrow band of brown near the end; the tail-feathers are also white at the base and tip, in the rest of their extent pale yellow, undulated with black, and having three distinct transverse bands of the latter colour, the lateral feathers gradually becoming more white, and losing one of the black bands.

Length to end of tail, 18 inches; bill along the ridge, 1; along the edge of lower mandible, 1·33; wing from flexure, 10; tail, 4·25; bare part of tibia, 1; tarsus, 2·66.

Female.—The female, which is about the same size, differs in having none of the blue or black so conspicuous on the neck of the male; the upper part of the head, its sides, and the neck all round, are pale reddish yellow, variegated with dark brown, each feather having a broad median longitudinal band and several transverse bars; the throat is yellowish white; the upper parts are variegated as in the male, but with the markings larger, and many of the feathers having a large black patch in the middle, towards the end; the wings and tail as in the male, but with the white less extended and barred with black; the lower parts are yellowish white, the feathers of the breast and sides with transverse black lines; the lower tail-coverts with the shafts black, and some bars of the same colour.

Male in Winter.—At the end of autumn the black, white, and grey feathers on the head and neck are changed for others, variegated with yellow and black, so that in winter the male resembles the female, but with the markings finer.—*Macgillivray, Vol. IV.*, 36.

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845 *bis.*—Charadrius pluvialis, *Lin.*

This species is closely allied to our Indian Golden Plover, and to the Grey Plover, *Squatarola helvetica.* All three go through much the same seasonal changes of plumage, but the Grey Plover has always *black* axillaries; *pluvialis* has always white axillaries, and our Indian *fulvus* has always smoke grey axillaries.

Besides this, the Grey Plover has a much larger bill, and has a rudimentary hind toe and claw, which is wanting in both the others.

Although with this explanation it may be hardly necessary, I yet quote full descriptions of the present species taken from Dresser:—

"*Adult Male in Summer plumage.*—Upper surface of the body black, spotted all over with golden and white, but the latter in a less degree; the nape rather paler and less varied with black; wing-coverts dusky brown, sparingly spotted with golden and white; the greater coverts more conspicuously notched with white; the primary coverts dusky brown with white tips; quills dusky brown; the shafts white in the middle, with a patch of white also visible at the outer base of the lesser primaries; the secondaries black, marked with oblique golden bars; upper tail-coverts black, irregularly barred across with golden; tail blackish, with transverse markings of whitish, and a slight tinge of golden here and there; sides of the face, throat, breast (narrowing on the upper part), and belly black; forehead, a spot below the eye, eyebrow, extending down the sides of the neck and bordering the black chest right down to its extremity, white; the sides of the upper part of the breast black, varied with golden; flanks slightly mottled with dusky; centre of the under tail-coverts black, the sides white; under wing-coverts white, marked with dusky brown on the edge of the wing; axillary plumes pure white; bill black; feet bluish grey; iris dark brown. Total length, 7·8 inches; culmen, 1·0; wing, 7·1; tail, 3·4; tarsus, 1·6.

"*Adult Female.*—Similar to the male, but has the black breast somewhat tinged with brown.

"*Male in Winter plumage.*—Upper surface of the body black, mottled with golden, exactly as in summer; forehead buffy white; eyebrow whitish, distinctly washed with golden, and minutely spotted with dusky brown; cheeks whitish, washed with golden, and more plainly spotted with dusky brown; feathers round the eye white; throat and lower breast and abdomen pure white; chest and sides of the body mottled with greyish brown, and distinctly washed with golden; under tail-coverts white in the centre, the outermost mottled with dusky brown and washed with golden; under wing-coverts white, thinly marked with greyish brown; axillary plumes pure white.

"*Observations.*—Specimens vary very much in the amount of golden colour which they have in the winter plumage, some of them being very much brighter than others; and the amount of dusky brown on the breast is also a character which varies a great deal."

845 *quat.*—Ægialitis asiatica, *Pall.*

Though this is very similar to *Æ. vereda*, it is always smaller and has a smaller slenderer bill than this latter; moreover in *asiatica* the axillaries are white, while in *vereda* they are dark smoke grey. It is easily distinguishable from *Æ. mongola*, by its longer tarsus. I quote the following :—

"*Description.—Adult in Summer.*—Bill black, moderately long, slender ; crown, nape, the whole of the back and wings above hair brown ; forehead, eyebrows, eyelids, sides of the face and throat pure white ; across the breast a broad rufous band, the lowest feathers of which, in some specimens, are terminated by dark umber brown ; thence to the extremities of the under tail-coverts, pure white ; primaries brownish black ; the shafts of all mesially white ; secondaries long, extending nearly to the end of the primaries ; axillaries white ; tail moderately long ; the outer feathers on each side smoke grey ; the others darker in colour as they approach the middle (in immature birds each margined at the extremity with white) ; legs long and slender ; a considerable portion of the tibia bare ; toes three placed anteriorly ; the middle and outer toe of each foot connected at their base by a slight membrane ; legs and toes greenish ochreous (? ochreous yellow) ; the sexes similar.

"*Adult in Winter.*—Crown, nape, whole of the back, and wings above as in summer, but somewhat paler in colour ; no rufous pectoral band, but in lieu thereof a patch of dusky-grey on each side of the breast. The rest of the underparts pure white ; legs and toes paler than in summer.

"*Young.*—Crown, nape, whole of back, and wings above hair-brown, each feather margined with buff ; the parts which in the adult are white, tinged with buff ; the pectoral band presents a mottled appearance, each feather being light brown, margined with light buff ; primaries and axillaries as in the adult ; secondaries edged with buff ; legs and toes pale horn colour.

"*Dimensions.*—Total length, 7·5 inches ; bill, ·8 ; wing, 5·5 ; bare part of tibia, ·7 ; tarsus, 1·5 ; middle toe, ·8."—*Harting*, "*Ibis*," 1870, 203.

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850 *bis.*—Ægialitis nigrifrons, *Cuv. in Tem.*

Blyth says, *Ibis*, 1867, 165 :—

"*A. nigrifrons* is omitted by Dr. Jerdon, though he obtained a single specimen near Madras in the month of June, (*i.e.*, dur-

ing the southern winter) which is now in the Calcutta Museum. Of course it is an exceedingly rare and accidental straggler."

Gould thus describes the species :—

"The sexes are precisely alike in the colouring of their plumage, and nearly so in size.

"Forehead, a stripe commencing at the eye, passing over the ear-coverts and round the back of the neck, and a broad band crossing the chest and advancing somewhat down the centre of the breast black ; a stripe of white passes over each eye and continues round the back of the neck, separating the black band from the crown, which, with the back, the long tertials, and the middle of the wing, are brown ; scapularies deep chestnut; tips of the greater coverts white, forming an obscure band across the wing ; primaries black ; throat, abdomen, and under tail-coverts white ; two middle tail feathers brown at the base and black at the tip ; the next three on each side white at the base, gradually passing into blackish brown, and largely tipped with white, the remainder entirely white ; bill rich orange at the base and black at the tip ; feet orange flesh colour in some, in others pale flesh colour ; irides dark brown ; eyelash bright red.

"The young have a crescentic mark of a lighter colour on the feathers of the upper surface, and have the colouring of the plumage and soft parts less brilliant and well defined than the adults."—*Gould*, "*Bird of Australia.*"

And this is Jerdon's description of his specimen :—

"363.—*C. russatus.*—New species ?

"*Description.*—Forehead, streak on either side, extending through the eyes, ears, and meeting behind, and a broad pectoral band deep brownish black ; top of the head, back and wing-coverts of the usual brown cinereous hue of the *Ringed Plovers ;* band above the eyes, encircling the head, except in front, and plumage beneath white ; wing-coverts edged with white ; quills and medial tail feathers dark brown ; external tail-feathers white, with a broad band which almost disappears on the outermost feather ; scapulars deep maroon colour ; upper tail-coverts tinged with rufous ; bill yellow with black tip ; orbits bright yellow ; legs orange yellow.

Length, 6·5 inches ; wing, 4·5 ; tail, 2·2 ; bill at front nearly 0·6 ; tarsus rather more than 1 inch.

"I procured a single specimen of this apparently new species of *Ringed Plover* at the edge of the Pulicat Lake near Madras, in the month of June. Its distinguishing feature is the maroon colour of the scapulars. Whether this is a permanent mark, or, as I conjecture may be the case, only assumed during the breeding season, I am at present unable to determine."

910 *ter.*—Porzana cinerea, *Vieill.*

"*Rallus, supra fuscus gilvo mixtus, subtus pallidior gula albida, capite supra nigricante, utrinque strigis duabus albis.—Longitudo* 8·5 *poll.*"—Horsfield.

"Above, light brown; beneath white; crown and neck cinereous; lores black; before the eye, and beneath the ear, are two white stripes.

"Inhabits India. Mus. nost.

"Size small. Total length, 7·5 inches; bill, base, 0·6; gape, 0·7; wing, 0·2* ; tarsus, 1; middle-toe and claw, 1·6; hind ditto, 0·15. A typical and elegant species. Ears and sides of the neck light cinereous; above the former a clear white stripe; crown nearly black; flanks and under tail-coverts fawn colour; from the chin to the vent pure white; bill and legs pale."—*Swains.*

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910 *quat.*—Crex pratensis, *Bechst.*

Plumage of the upper parts dull yellowish red, streaked with brownish black; wing-coverts light red; sides of the head grey; lower parts pale reddish; lower wing-coverts, axillaries, and sides, light red, barred with white.

The bill is light brown; the lower mandible whitish at the end; the iris is light hazel; the feet bluish flesh colour; the upper parts are light yellowish brown, each feather marked with an oblong central spot of brownish-black, and laterally tinged with grey; the wing-coverts are light red, some of them imperfectly barred with white; a broad band of ash grey passes over and behind the eye and ear, and the cheeks are tinged with the same; the face, forepart and sides of the neck are light yellowish brown, tinged with grey; the sides and breast barred with light red and white; the lower wing-coverts and axillar feathers light red; the chin and abdomen brownish white; quills and primary coverts light brown, their outer webs tinged with light red; the edge of the wing and outer web of the first outer feather and first quill reddish white; the inner secondaries and tail-feathers like the back.

Length to end of tail, 10·75 inches; extent of wings, 18; wing from flexure, 6; tail, 2; bill along the ridge, 0·91; along the edge of lower mandible, 1·08; tarsus, 1·58.

Female.—The female is similar to the male.

Length to end of tail, 10½; extent of wings, 17½.—*Macgillivray, Vol. IV.*, 527.

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* This is nonsense, but it is as it stands in original.

945 *bis.*—Anser segetum, *Gm.*

The bill is orange with the margins of both mandibles, the basal half of the lower, and the ridge of the upper, with a streak on each side as far as the nostrils, black; the iris hazel; the feet dull orange yellow; the claws dusky.

The head and neck are greyish brown; the foreneck and breast gradually shaded with pale wood brown; the latter fading into greyish white; the hind part of the abdomen, and lower tail-coverts, the sides of the rump and the upper tail-coverts, white; the feathers of the forepart of the back, the scapulars, and the wing-coverts, are deep greyish brown, narrowly edged with brownish white; those of the middle and hind part of the back blackish brown; the edge of the wing and the primary coverts are ash grey; the outer secondary coverts tinged with the same, and terminally margined with greyish white; the primaries are blackish brown, the outer grey towards the base, all with the shafts white; the secondary quills brownish black, the inner dark brown, grey towards the base; the tail-feathers greyish brown, tipped with white, the lateral almost entirely white. The large feathers of the sides under the wings are greyish brown, margined with pale brownish grey; the lower wing-coverts purplish brown.

Length to end of tail, 31 inches; extent of wings, 64; wing from flexure, 18·5; tail, 5·5; bill along the ridge, 2·33; tarsus, 3·16.

The female is similar to the male, but smaller.—*Macgillivray, Vol. IV.*, 597.

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971 *bis.*—Clangula glaucion, *Lin.*

Male.—The bill is black; the iris yellow; the feet orange yellow, with the webs dusky; the claws brownish-black; the head and upper part of the neck are glossy deep green when seen in a light reflected at a small angle, but otherwise purple; the throat brownish black; between the lateral basal sinus of the upper mandible and the cheek is an ovate patch of white, and in its greatest diameter and ten-twelfths across; the lower neck all round, the breast, forepart of the abdomen, sides, and lower tail-coverts white; but the axillar feathers and lower wing-coverts are blackish brown, and the edges of the posterior elongated feathers on the sides black; the back and the inner and posterior scapulars are black; the outer scapulars white, with the margins black; the tail is deep brown, tinged

with grey ; the sides of the rump and tibiæ dusky grey, and the feathers on the hind part of the abdomen dusky at the base ; the wing may be described as brownish-black, with a large patch of white, which includes many of the small coverts, several of the secondary coverts, and eight of the secondary quills ; these white secondary coverts have their basal half black, but that colour is not apparent when the feathers are laid.

Length to end of tail, 19 inches ; extent of wings, 32 ; wing, from flexure, 9 ; tail, 4 ; bill along the ridge, 1·42 ; tarsus, 1·42.

Female.—The female, which is much smaller, has the bill less stout ; the feathers of the head less elongated and less glossy, as are the scapulars and the feathers of the sides ; the bill is light brown, yellowish on the ridge towards the end, with the upper unguis dusky ; the lower yellowish-brown ; the tarsi and toes are of a dingy yellowish brown ; the interdigital membranes dusky ; the claws brown ; the head and upper neck are umber brown ; the lower neck all round dull ash grey ; the feathers terminally edged with paler ; the lower parts are white ; but the sides of the body and rump, with part of the abdomen, are grey ; the axillars and lower wing-coverts brownish-grey ; the back and scapulars are deep ash-grey, but on the hind part of the back that colour shades into black ; the tail dark brown, tinged with grey ; the smaller wing-coverts are deep grey, many of them tipped with pale grey ; the primaries, their coverts, four outer secondaries, and five inner, with their coverts, brownish black ; the seven other secondaries pure white as are their coverts, unless at the base.

Length to end of tail, 16 inches ; extent of wings, 28 ; wing, from flexure, 8·25 ; tail, 3·25 ; bill along the ridge, 1·25 ; tarsus, 1·25.—*Macgillivray, B. Birds.*

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975 *ter.*—Daption capensis, *Lin.*

Its weight varies from 14 to 18 ozs. ; there is no difference in the weight of the sexes, neither is there any visible variation in their colouring, nor do they appear to be subject to any seasonal change.

Head, chin, back and sides of neck, upper parts of the back, lesser wing-coverts, edge of the under surface of the wing, and the primaries sooty brown ; wing-coverts, back and upper tail-coverts white, each feather tipped with sooty brown ; basal half of the tail white ; apical half sooty brown ; under surface white ; the under tail-coverts tipped with sooty brown ;

beneath the eye a small streak of white; bill blackish brown; irides and feet very dark brown.—*Gould*, "*Bird of Australia.*"

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981 *bis.*—Larus minutus, *Pall.*

Major Irby says in his paper on the Birds of Oudh and Kumaon: "I killed a specimen of this Gull, in its winter dress, in January 1859, near Jehangirabad; it was exceedingly tame, allowing me to approach within two or three yards."

This has been quoted and requoted, and on the strength of this, *L. minutus* has been assumed to be an Indian species.

Now I am quite sure that Major Irby fully believed what he said, but I doubt whether he *was at that time* a good enough ornithologist to be certain of the species or to enable us to feel sure that the bird he got was not something else—*Hydrochelidon hybrida* or *S. anglica* for instance. Anyhow no other specimen of the little Gull has ever been observed in India, and I cannot at present admit the species into our list. I should be delighted, however, to find myself wrong, and Major Irby right, and in order to enable any one who does get hold of a specimen (if this by any chance might happen,) to identify the bird at once and convict me of error, I subjoin a full description of the species, quoted from Dresser's great work on the Birds of Europe:—

"*Adult Male, in Summer Plumage.*—Back beautiful, delicate, French grey; head black all over, the throat included; back and sides of the neck, upper part of the back, rump, and upper tail-coverts, as well as the tail itself, pure white; wing-coverts of the same colour as the back; quills delicate grey above like the back, all the feathers tipped with white; the under surface of the wing greyish black; under surface of the body pure white, with a beautiful blush of pink on the breast; under wing-coverts dark grey; axillary plumes greyish white; bill blackish red; gape dark red; legs bright vermilion or coral; iris deep brown. Total length, 10·4 inches; culmen, 0·9; wing, 8·8; tail, 3·6; tarsus, 0·95.

"*Adult Female.*—Exactly similar in colouration to the adult male, but perhaps a trifle smaller in size.

"*Adult Male in Winter Plumage.*—Conspicuous by the absence of the black head; the latter is white, excepting a slight indication of grey on the nape; the breast is suffused with pink as in summer; but the feet are yellowish red, and not nearly so brilliant as in the breeding bird.

"A young male in the second year had the bill blackish; the legs dirty orange yellow; the head white, grey on the nape; below that some feathers, as also the long auricular mark, black; back of neck, sides of neck and back blue grey, darker than the old bird; below white, with a beautiful rose tinge; the five outer quills brownish grey, with inner web white, the inner ones, as also the larger wing-coverts, light blue grey; the lesser-coverts, three last secondaries, the middle wing-coverts, and a broad band on the tail, which lessens towards the outside, black; the tips of the white tail black, or blackish brown, most of the feathers were edged with white. As I before stated this bird has no incubation spots.—(*Meves, in epist.*)

"*Young.*—Head brown, varied with black and grey; forehead white; cheeks and ear-coverts blackish; back brown; some of the feathers darker and almost black, and some becoming grey; lower part of the back blackish; rump and upper tail-coverts pure white, the latter here and there edged with brown; wing-coverts blackish; those on the carpal joint becoming grey; the median and greater coverts more or less distinctly edged with grey or white; quills blackish, tipped with white; the inner primaries and outermost secondaries more conspicuously; the under surface of the wing white, the greater part of the inner webs of the quills being of this colour; tail white at the base, black towards the tip, forming a broad bar; under surface of the body white, with a few brownish feathers on the upper part of breast; under wing-coverts white; bill horn-black; feet flesh-coloured. Total length, 10 inches; culmen, 0·9; wing, 8·7; tail, 3·8; tarsus, 0 9.

"*Observations.*—The bird just described is in the collection of Mr. J. H. Gurney, jun., and is undoubtedly the youngest we have yet seen. It was shot on the 14th of October 1868, at Flamborough Head, and is not yet full grown. The varied plumage of black and grey is similar to that of the young Kittiwake, and a great difference in the colour of the quills from the adult bird is to be noticed. In the fully mature Little Gull, the quills are beautiful grey with white tips, while the under surface is greyish black, the under wing-coverts being also dark grey, while in the young bird the upper surface or the wing is black, and the under surface almost entirely white; the under wing-coverts being wholly of the latter colour. As the bird progresses towards maturity the scapulars become grey, and all traces of the pale brown feathers on the head and back disappear. A specimen in Mr. Gurney's collection exhibits this phase of plumage; it was killed at Flamborough Head on the 24th of October 1867, and is described as having a tinge of salmon colour on the breast, although so young. The grey

colour gradually spreads over the entire back and scapulars, and the black on the lower part of the back begins to disappear, but very little change is perceptible in the wing. We are inclined to believe that the change of colour in the wing is also gradually assumed, and that the black disappears by degrees, the grey colour making its appearance first on the bases of the feathers, and extending bit by bit towards the extremity of the quill. We may mention in conclusion that, although it has been stated to the contrary, the Little Gull, when immature, certainly has the tail perceptibly forked."

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984 *bis.*—Hydrochelidon leucoptera, *Meisn. and Schintz.*

The *Hydrochelidons*, with their short, slightly-forked tails, small feet and deeply emarginate interdigital membranes are easily separable at any age from all our other Indian Terns; and the adults in full plumage of the three species of *Hydrochelidon* are not difficult to distinguish.

Leucoptera has the head and neck all round black, and the shoulder and greater part of the coverts of the wing pure white.

Nigra has the head and neck all round sooty black, and the wings leaden grey.

Hybrida has the top of the head and nape jet black; lower half of face white or nearly so, and wings leaden grey.

But in the winter and immature plumages they are not so easy to separate.

Individuals vary so in size that it is not much use giving comparative dimensions, but still, taking a good series, *hybrida* will I think be found to be the largest, and *nigra* the smallest, and the following may be taken, I believe, as approximate average dimensions of the three species :—

Hybrida	length,	11 ;	wing,	9·5 ;	tarsus,	0·9
Leucoptera	"	10 ;	"	8·5 ;	"	0·8
Nigra	"	9 ;	"	8·0 ;	"	0·7

The coloring of the soft parts, however, which seems to hold good more or less even in young birds, affords one means of discriminating fresh specimens :—

	Bill.	Legs and feet.
Hybrida	blood red	red.
Leucoptera	blackish, with a reddish tinge	red.
Nigra	black	dark reddish brown.

I add full descriptions of the present species taken from Dresser.

Adult Male in Spring.—Head, neck, back, scapulars, and innermost secondaries, and entire underparts, excepting the under tail-coverts, deep black; primary quills blackish grey, fading to greyish white on the outer portion of the inner webs, except on the terminal portion; shafts of the feathers white; secondaries light French grey, rather darker on the inner web and the terminal portion; lesser wing-coverts and edge of the wing white, larger coverts French grey; tail, upper, and under tail-coverts pure white; under wing-coverts black and blackish grey; the edge of the wing mottled with white; beak reddish black; iris dark brown; legs and feet vermilion red, with a coral tinge. Total length about 9·5 inches; wing, 8·2; tail, 3·0; tarsus, 0·8; middle toe with claw, 0·9.

Adult Female. (May).—Resembles the male, but is, if anything, a trifle less deeply coloured.

Winter plumage.—Differs from *H. nigra* in the same stage of plumage merely in the rump and upper tail-coverts, much lighter, indeed almost white, and may be distinguished also by its longer tarsus and foot, as well as by its stouter bill.

Young.—Posterior portion of the crown, a patch on the side of the head, and one on the hind neck dark sooty grey, the feathers with lighter margins, the patch on the hind neck with brownish markings; rest of the head, neck, and entire underparts pure white; back and scapulars blue grey, broadly tipped with blackish grey; wings as in the adult in winter, but the wing-coverts tipped with light reddish brown; rump and upper tail-coverts white; tail light French grey, becoming darker towards the tip.

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984 *ter.*—Hydrochelidon nigra, *Lin.*

Adult Male in Summer.—Crown, nape, and hind neck glossy black; entire upper parts dark blue grey, with a leaden tinge; the quills darker, nearly blackish on the inner web and in the first quill on the outer web also; tail short, moderately forked, coloured like the black; throat, sides of the head and underparts generally, to the vent, sooty black, with a leaden tinge; under tail-coverts pure white; under wing-coverts white, with a faint greyish tinge; beak purplish black; iris dark brown; legs blackish brown, with a purplish tinge. Total length about 9 inches; culmen, 1·3; wing, 8·0; tail, 3·25; tarsus, 0·65.

Adult Female.—Undistinguishable from the male in plumage.

Young.—Forehead dull white; a patch in front of the eye, crown and nape black; hind neck white; upper parts dull ashy, with a brownish tinge, the feathers being washed with dull light brown towards the tips; forepart of the back nearly black; wings and tail as in the adult, but rather duller; underparts white; the sides of the breast marked with dull blackish.

Adult in Winter.—Resembles the bird last described, but has the upper parts clearer grey and not marked with brown, and the dark markings on the sides of the breast are wanting.—*Dresser, "Birds of Europe."*

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990 *ter.*—Gygis alba, *Sparrm.*

There is a specimen of this species in the Leyden Museum, which was obtained by Dussumier, in the Bay of Bengal, and I myself have twice seen what I *believe* to have been this species.

The bird is recognizable at once by its snow-white plumage, with only the shafts of the quills blackish, its rather large black bill, conical, pointed, large at the base, slightly bent upwards, the angle of the gonys large and projecting. Feet orange, feeble; tarsi short; the interdigital membranes deeply incised; tail graduated, approaching in shape that of *Anous*. Wing, 9·75 to 10·25; bill at front, 1·6 to 1·75; tarsus, 0·5.

1000 *bis.*—Fregata minor, *Gm.*

"This is less than the last, (*Fregata aquila*), and measures only two feet nine inches in length; extent from wing to wing, five feet and a half. The bill five inches long, and red; the base of it, and bare space round the eye, of the same colour; the nostrils are sufficiently apparent, and appear near the base; shape of the bill as in the larger one; the head, hind part of the neck, and upper parts of the body and wings are ferruginous brown; the throat, forepart of the neck, and breast, white; tail greatly forked, as in the other; legs of a dirty yellow.

"In my collection there is a bird very similar to this, if not the same; general colour of the plumage a full black; breast

and belly mottled with ash colour; the inner ridge of the wing the same; the bill has the long furrow, as is seen in the greater one, but the nostrils are sufficiently apparent, being about half an inch in length, rather broader at that part which is near the base. This has a large red pouch at the chin and throat, as in the former species. It is most likely that mine is the *male* bird, as others, suspected to be of the opposite sex, have little or no traces of the jugular pouch."—*Lath., Gen. Syn.*

"The male has the entire plumage brownish black; the feathers of the head glossed with green, and the lengthened plumes of the back with purple and green reflexions; orbits and gular pouch deep red; bill bluish horn colour; irides black; feet dark reddish brown.

"The female is similar to the male, but browner; is destitute of the coloured plumes on the back; has some of the wing-coverts and tertiaries edged with light brown, forming a mark along the wing; a collar at the back of the neck; the breast and upper part of the flanks white, washed with rufous."—*Gould, "Birds of Australia."*

1004 *bis.*—Pelecanus crispus, *Bruch.*

Turning now to the other sub-group in which the feathers of the forehead terminate not in a point but in a line concave to the base of the culmen, we have first *Pelecanus crispus*, the large size and generally silvery hue of which ought to prevent its being mistaken for any other species.

Some ten years ago I first pointed out that this species occurred in India, and though this was somewhat doubted at the time, it was subsequently accepted.

This species is not included by Dr. Jerdon in his "Birds of India," and full dimensions and description will be useful to Indian Ornithologists. As in other species of the genus the male considerably exceeds the female in size.

Male.—Length, 70 to 74·5; expanse, 114 to 122; tail from vent, 9·5 to 10; wing, 26·25 to 29·28; bill at front including nail, 15·4 to 16·6; weight, 20 to 27lbs.

Female.—Length, 66 to 68; expanse, 110 to 115; wing, 25 to 28; tail from vent, 7·5 to 9; bill at front, including nail, 13·4 to 15·0; weight, 18 to 24lbs.

The sexes are apparently perfectly similar. In the adults the irides are white; in the young pale yellow, and possibly in a younger stage brownish yellow; the legs and feet are a

pure pale plumbeous. In the young birds, with the front and interior surface of tarsi, and tibiæ somewhat mottled with creamy, perhaps in the very young bird mostly of this color; the bill is in the adult dusky plumbeous; edges of upper and lower mandibles for the terminal two-thirds yellowish, and in the young a horny whity brown or yellowish grey or yellowish horny; the nail orange, or pale orange yellow; in the spring or breeding plumage the pouch is a deep orange red, with a black patch on either side just at the base of the lower mandible; in the non-breeding plumage the pouch is a light dirty primrose, or in some pale fleshy, tinged with lemon; in the young bird both the lower mandible and the pouch are a uniform creamy white; the cheeks and orbits in the adults in spring plumage a bright pale yellow; in the winter yellowish white; in the young bird a sort of livid creamy white.

In the adult in spring plumage, excepting the quills, primary coverts and winglet, the whole plumage is white, with more or less of a pearly grey tinge on both the upper and under surfaces, according to the light in which it is looked at; there is a broad band at the base of the neck in front, and at the sides, faintly tinged with very pale straw color; there is not the faintest tinge of rosy anywhere.

The whole of the feathers of the head and neck are very narrow, long, soft and silky, much curled and twisted on the head, especially behind and just above the eye; and the feathers of the back of the head are much elongated, so as to form a dense full crest some 4·25 inches long. A line of feathers about 1·5 inches wide down the whole back of the neck is of a more snowy, and less pearly white than the rest of the neck; the scapulars, rump, and upper tail-coverts and median and greater wing-coverts are conspicuously black shafted; and all these, except the longest of the scapulars, are very long and lanceolate. A few of the longest scapulars are broad and round, or mucronate at the end; (and two or three of these have in some specimens a good deal of greyish brown about them, probably the remains of immature or non-breeding plumage); there is a beautiful satiny gloss over the whole back, scapulars, and tail; the two exterior tail-feathers with nearly the whole shafts black, and generally with a decided grey tinge on the outer webs to near the tip; the rest of the tail feathers with only the terminal third of the shafts, black; the primaries (all of which are white at the base) and their coverts, and winglet very dark brown, almost black; the second to the fifth primary emarginate on the outer web, and silvered with grey on the last above the emargination, which in the second is hidden by the coverts. There is more or less silvering of

grey on the outer webs of all the other primaries, their coverts and winglets; the first five primaries are faintly notched on the inner web, and were pale or greyish white on the latter above the notches, while the rest of the primaries have the inner portions of the inner webs white; this is still more conspicuous in the secondaries, most of which have their whole outer webs a silver grey (probably those which still retain the brown are the remains of the less mature plumage); the tertials are pure white (while some are pearly grey on the outer webs, and on the inner greyish brown paling to grey or white towards the margin); the feathers of the base of the neck and breast are very thickly set, very narrow and pointed; the filaments along the margin a good deal separated.

The young bird in the stage in which we usually obtain them, altogether wants the linear lanceolate feathers. It has the whole head, neck, and lower surface of the body, and under surface of the wings (except the tips of the quills, and a row of small coverts near the margin of the wing, which are pale wood brown); the middle of the back between the shoulders, the whole middle and lower back, rump, and upper tail-coverts white, more or less shaded with grey about the back of the neck, owing to the dark bases of the feathers shewing more or less, but elsewhere very pure; the feathers of the head and neck are far shorter, and more fur-like than in the adult. There is scarcely any twisting and curling about the ear-coverts; and the crest is very small in volume, and not above two inches in length; the whole of the scapulars and shoulder feathers are broadly tipped with pale brown, which, owing to their overlapping each other, is the chief color visible; and though their shafts are dark as in the adult, they have not the linear lanceolate character so conspicuous in the latter; the upper tail-coverts are dark shafted as in the adult; the tail feathers are white at the base, on both webs; the greater part of the rest of the inner web white, with a little grey towards the tips, and of the outer webs silvery grey; fully the basal third of the shafts white, the terminal two-thirds blackish; the tertials and their coverts nearly pure white; only a row or two of the lesser coverts along the edge of the wing pale brown, and the tertials themselves, and greater coverts, with a tinge of the same hue about the tips; the whole of the lesser and median coverts, from the elbow to the carpal joint, pale brown (some of the feathers greyer, and others more buffy), darker shafted, and faintly tipped with white; primaries and secondaries with white at their bases on both webs, and with a large portion of their inner webs white; the rest a darkish brown; winglet and primary greater coverts much of the same

color; the greater coverts of the secondaries are mostly pure white, those only near the primaries tinged at the tips with rather pale buffy brown.

In a younger stage still the whole upper surface of the bird, in fact the whole bird as seen swimming in the water, appears a dull earthy brown, but I never succeeded in bagging a specimen in this stage, though I have seen several such in November. These birds come in October and leave in March; they are not rare in large pieces of water in Oudh, the North-Western Provinces and the Punjab, but in Sindh and all along the Mekran Coast they are *the* Pelican. I observed incredible numbers in the Indus, and in every large inland lake; in the Kurachee harbour, and in every bay along the coast thence to Gwader. In the middle of February they had all assumed the deep orange pouch, and the straw colored breast patch.—*Hume, "Monogr. Gen. Pelicanus."*

Notes.

I SUSPECT THAT *Rallina telmatophila*, nobis, *ante*. p. 142, is really *Rallus superciliaris*, Eyton.—A. and M. N. H., XVI., 230, 1845.

This has been universally identified with *Porzana cinerea*, which also occurs in the Malay Peninsula, but reading carefully Eyton's description, it is certain that this identification is wrong, and very probable I think that he intended to describe the bird I named *telmatophila*. His original description is as follows:—"*Rallus superciliaris.—R. olivaceo brunneus, gula alba, striga superciliari rufo, subtus strigis atris et albis transversis alternate notatis, pedibus rostroque viridibus.*

Long. tot. 9½ *unc.; tarsi,* 1½ *unc.; ros. fron.,* $\frac{1}{10}$ *unc.*"

The dimension of the bill is of course absurd, and the *whole* lower parts are *not* banded, only the parts *below* the breast, but on the whole the description seems to me to apply fairly well, and I am utterly at a loss to understand how an authority so careful as Salvadori—not to mention many others who are neither careful nor authorities—could identify a bird thus described with *cinerea*.

REFERRING TO MY supposed new species *Iole terricolor*, S. F., VII, 141, I feel bound to suggest the possibility that has occurred to me that this may be one stage of the plumage of *Iole cinerea*, Hay. Bly., J. A. S. B., XIV, 573, 1845, from Malacca.

My bird is considerably larger, as will be seen :—

I. terricolor,	Length,	8 ;	wing,	4·0 ;	tail,	3·9 ;	bill from gape,	1·0.
I. cinerea,	„	7 ;	„	3·75 ;	„	3·25 ;	„	0·87.

Then again *cinerea* has the upper parts cinereous brown, the forehead and above the eye ashy, which color also margins the pointed feathers of the crown, whereas there is not a trace in *terricolor* of any cinereous tinge on the upper surface. It is a very uniform pure brown, a little warm in its tinge, intermediate between an earth brown and hair brown, though nearest the latter.

Again the ear-coverts in *terricolor* form a most conspicuous patch which could scarcely have escaped Blyth's notice, but no mention of these is made in his description of *cinerea*.

On the whole I believe *terricolor* is probably distinct, but I forgot to refer to *Iole cinerea* when describing it, and think it right, therefore, now to draw attention to the fact that the two *may* possibly be identical.

Referring to Moore's *Orthotomus maculicollis*, P. Z. S., 1854, 309, from Malacca, and Mr. Sharpe's remarks on this species, *Ibis*, 1877, 116, in which he suggests that the bird may have come from one of the Philippine Islands, it may be interesting to state that Davison shot a male of this species on Singapore Island on 20th September.

The bird is very like *sutorius*, but is distinguished at once by its larger bill, duller colors, bright ferruginous thigh-coverts, and brown, white streaked ear-coverts and sides of head.

In Vol. VI., p. 519, I noticed having obtained near Tavoy a specimen of a *Zosterops* which I said might either be an accidental variety of *Z. palpebrosa*, or might indicate a new species. I said that, if other specimens were obtained, the bird would require a name, and that in that case it might stand as *Z. auriventer*.

I now find that I have five similar specimens from different parts of the Malay Peninsula, and though apparently not previously thence recorded, I entertain little doubt that these specimens are referable to *Z. lateralis*, Tem., MSS. in Mus. Lugden ; Hartlaub, Monograph of the genus *Zosterops*, J. F. O., 1865, p. 15.

Hartlaub says of this species, of which he was the first I believe to publish any description : "Numerous specimens of this species from both Java and Sumatra are in the Leyden Collection. Henri Boie collected this species in July on Tapos

Mountain. In Jules Verreaux' collection are three specimens, labelled Timor.

Hartlaub's original description runs as follows:—"Supra saturate flavescente viridis; supracaudalibus flavioribus; remigibis nigris, dorsi colore marginatis; cauda nigra; annulo periophthalmico albo; infra nigro circumdato; gula citrina; pectore et abdomine dilute plumbeis, medio longitudinaliter flavis; cruribus et subcaudalibus saturate flavis, subalaribus albis, flavido varius, rostro brevi, recto, nigricante."

Except that I should call the wings and tail dark brown instead of black. This description fits our bird perfectly, and my proposed name *auriventer* must, therefore, be suppressed, *lateralis* being added instead to our Indian list.

The Ceylon Spur Fowl is generally quoted as *Galloperdix zeylonensis*, Gm., S. N., I, 759, 1788; but Gmelin himself quotes the name *bicalcarata* from the Indian Zoology, fig. 14, shewing that this name and figure had been published before his own compilation.

He himself rejected this name because he classed the bird as a *Perdix* next to the Linnean *Perdix* (*Francolinus*) *bicalcaratus* of Senegal, but Pennant's name was clearly anterior to his own, and as we are all agreed to class the bird in a wholy different genus to that in which the Linnean *bicalcaratus* is placed, Pennant's name must now be maintained. As a matter of fact, Pennant's name appears to have been first published in the London Folio edition of 1769, though the only editions that I have been able to come across are the London Quarto one of 1790,* and Forster's German one of 1795.

Captain Butler sent me a lovely specimen of *Demiegretta gularis*, Bosc., shot by him at Mundavie, in Kutch, on the 21st of January, 1878.

This bird is an old adult in the deepest ashy-blue plumage, but it is remarkable for having not only a larger gular space than usual pure white, but for having the whole of the primary greater coverts, and also the 4th and 5th primaries, pure white.

Mr. Seebohm says: "I have examined the types of *Phylloscopus presbytis* and find, as I had already guessed, that this species is identical with *P. viridipennis*, of Blyth, but inasmuch as *P. presbytis* was never described by Müller, and the bird

* So given on the title page, but the preface bears date March 1st, 1791, and I believe that the work was not actually published till 1792.

is mentioned by him as from *Sumatra*, whereas the supposed types in the Leyden Museum are labelled from Timor, the species must of course stand under Blyth's name.

He adds: "I am also nearly sure that *P. plumbeitarsus* will prove to be the summer plumage of *P. viridanus*. This bird will then breed abundantly from the Ural to Lake Baikal and winter in India and Burmah." *I think this view will* require confirmation.

Mr. E. W. Cleveland sends me a beautiful specimen of *Bucanetes githagineus*, which he shot near Hattin in the Gourgaon district (Punjab) on the 16th December 1877.

No doubt the bird occurred here, as Mr. Cleveland remarks, as a mere straggler, but still its occurrence so far east is most remarkable.

When I discovered it years ago in Sindh, this was an enormous extension eastwards of its range, (which westwards stretches to the Canaries.)

Again, last year, when I shot it at Jodhpoor, we had a further easternly extension, and now this new locality extends the range to the 78° E. Long.

It may be well to notice that all the *Ioras* collected by Mr. Cleveland in the Gourgaon district are, without exception, *nigrolutea*.

Mr. Cleveland also sends me a female of that rare species, *Pratincola insignis*, one of the very few known Indian species of which our museum has hitherto contained no single example.

This he shot at Captaingunj, Zillah Bustee, (*viz.*, a little west of Segowlee, whence Hodgson's type came) on the 27th October.

Length, 5·8; wing, 3·42; bill from frontal bone, 0·67; tarsus, 1·08; tail, 2·4; irides brown; bill and legs black.

Upper parts grey earth brown, the feathers all centered with dark hair brown; upper tail-coverts dull, rather pale ferruginous buff; wings and tail blackish brown; the greater and median coverts broadly tipped, the greater ones with dull rather creamy white, the rest with pale buff, forming two rather conspicuous wing bars; all the quills and coverts, the secondaries (which are also tipped) rather more broadly, margined with creamy white; tail feathers similar, the margin most conspicuous on the outer web of the outer feather; chin and upper throat creamy, rest of lower parts nearly uniform rufous buff (with an indistinct gorget of blackish brown spots at the

base of the throat) and paling somewhat on lower tail-coverts, flanks, axillaries and wing-lining; there is a rufous white patch at the base of the quills on their inner webs.

NOTE THAT at p. 426, Vol. VI., the tarsi of the male in *Pavo muticus* are given by a misprint at from 7·0 to 8·5. It should have been 5·5 to 6·3.

SOME YEARS AGO I identified some Pipits procured in India as *Anthus pratensis*. Verreaux confirmed this identification, (*vide Ibis*, 1871, 36.) I now believe that we were both wrong, and I very much doubt whether *A. pratensis* occurs at all in India.

SOME YEARS AGO I proposed the name *swinhoei* for the Indian representative of the Javan *Merops quinticolor*.

Swinhoe first pointed out the constant difference which distinguishes the two forms, and applied Gmelin's name *erythrocephalus*.

The Marquis of Tweeddale correctly pointed out that this name was quite indeterminable, and could not therefore be used. I then applied the name *swinhoei*.

The Marquis of Tweeddale then asserted that this name was quite unnecessary, as Vieillot's name *leschenaulti* would apply.

I was away from any library at the time. I knew that this was wrong, and that I had looked into it before applying the name, but being unable to quote chapter and verse, dropped the matter and forgot it.

The other day in working out, as I am doing slowly, the synonymy of all our Indian birds, some 2,000 in number, I came upon this species, and I find that Vieillot's name *leschenaulti* is by no means applicable.

Vieillot's two names are founded on plates 15 and 18, (pp. 51, 55) of LeVaillant's Guêpiers, both of which plates unmistakeably represent the Javan form.

I have laid a series of each form on the table, pointing out their differences, and have then shown both plates, and every person to whom I have so shown them has unhesitatingly assigned *both* plates to the Javan form.

The bird was really, it seems to me, unnamed, until I named it, and if so will stand as,

119.—Merops swinhoei, *Hume*, (S. F., II., 163, 1874).

quinticolor, *Vieill.*, *Gould.* B. of As., Pt. VIII., pl. 13; *Jerd.* B. of In. I., 208, *et. auct.* nec *Vieill.*
urica, *Horsf*, *Gould*, loc. cit, nec *Horsf.*
erythrocephalus, *Gm.* S. N., I., 463, apud *Swinh.* P. Z. S. 1871, 348, nec *Gm.*
leschenaulti, *Vieill.* apud *Wald.*; *Blyth's* B. of Burma, J. A. S. B. 1875, Extra No. 72; Ibis, 1873, 301, nec *Vieill.*

Mr. Brooks shot a specimen of *Cyornis mandellii*, Hume, S. F., II., 510, at Muddapoor (on the E. I. R. in the Sonthal Pergunnahs, 160 miles due N. W. of Calcutta as the crow flies) on the 25th of September. He correctly identified the species, but he remarks: "Though I at first set it down as a *Cyornis*, I now think it should rather be referred to *Alseonax*. The very short tarsus separates it from *Cyornis*, and the coloration and the ring round the eye have an *Alseonax*-like character."

I am not prepared to dispute this view at present, but I must note that with the large number of species I now have of *Cyornis*, from India, Burmah, and Malayana, this genus has seemed to me quite to grade into *Alseonax*.

Numerous specimens of this very marked and distinct species have now been sent me from Sikhim and the Travancore Hills. Mr. Brooks' specimen, procured at Muddapoor, was doubtless migrating southwards. It does not seem to have turned up as yet in Ceylon, though it doubtless occurs in the hills there during the cold season as it does in the neighbouring Assamboo Hills.

It is perfectly well known, though it has perhaps never been noted in Stray Feathers, that Dr. Jerdon's No. 611, *Allotrius ænobarbus* was not *ænobarbus* at all, which is a purely Javan species, and moreover lumped two perfectly distinct species, *A. melanotis* and *A. xanthochloris*, of Hodgson, which were erroneously assumed to be male and female of the same species.

My friend, Mr. D. G. Elliot, has particularly pressed me to examine Blyth's *Porphyrula chloronotus*, and let the public know what it is.

Well, in the first place, the specimen when Blyth received it 30 years ago, was, he notes, in bad order, and naturally the lapse of time has not improved its condition; the entire tail is gone, and with it all the lower tail-coverts, but one tiny tuft, which is white, now yellowish and sullied. Most of the primaries of one wing are mutilated; the feathers all about the base of both mandibles have disappeared.

Then the bird originally was a young one—this is apparent from traces of pale tips to the feathers of the mantle.

Blyth believed that the specimen had come from the West Coast of Africa, but the donor, Mr. Templeton, was not certain.

Looking to all that remains of the specimen, I have no doubt that it is a young bird of *P. alleni*, Thompson, and though it is rather smaller than adults, and has the frontal shield skin undeveloped, and the colour of the plumage, especially of the lower parts, very much duller, this is only what might be looked for in a young bird; and as regards shape of bill, shape and position of nostril, size and shape and scutellation of legs, feet and claws, the correspondence is exact.

I CANNOT FIND (though I may have done so) that I have ever noted in STRAY FEATHERS, that, as was long ago pointed out by Blyth and others, Jerdon's No. 588.—Henicurus nigrifrons, *Hodgs*, is nothing but the young of his No. 587—Henicurus scouleri, *Vigors*.

IT HAS BEEN STATED that *Vigors*, when he described *Trochalopteron variegatum*, described the species with the grey and black wings and tail which I described as *T. simile*, (*vide Ibis*, 1871, 406, Lahore to Yarkand, 193, pl. VII., and S. F., III., 407) and not the species with bright yellow in these parts, and that therefore it is this latter that requires a new name.

Such, however, is not the case. Referring to Gould's figure, taken from Vigor's type, it will be seen that this was of the ordinary Central Himalayan type, such as we alone get about Simla with the yellow in wings and tail, and not at all the bird of the extreme North-West, which I named and figured.

I have no doubt that both are good species as species go. At their head-quarters, each is perfectly true to type without any admixture of the other, and these their head-quarters are widely separated.

Doubtless other more or less distinct, and perhaps intermediate forms occur in the intermediate country, but so long as *Thamnobia cambaiensis* and *fulicata*, *Crocopus chlorigaster*, *phœnicopterus* and *viridifrons*, &c., &c., are maintained, we must,

à fortiori, (for the differences are even more marked), maintain both *Trochalopteron variegatum* and *simile*.

THERE IS A WRETCHED SPECIES, No. 649 *ter* of my list, *viz.*, *Melaniparus semilarvatus*, of Salvadori, of which I have for years tried to obtain a description. At last I wrote to Salvadori himself, but he, though very kindly favouring me with all his more recent publications, will not come to the front about this particular species. I conclude it is a bad species.

HAVING LATELY obtained access to the XIX Vol. of the Asiatic Researches, and also having obtained specimens of the large Paroquet killed by Dr. Scully in the Saul forests of Nepaul, I find that Hodgson's name, *P. nipalensis*, cannot be applied to the species which occurs in the Sikhim Terai, and thence eastwards in Assam, Cachar, and with slight modifications throughout Burmah into Tenasserim, and which has no tinge of glaucous blue on nape and cheeks, but on the contrary refers to the species which exhibits this tinge, and is synonymous with Hutton's name *sivalensis*, of which it takes precedence.

No doubt Hodgson *figures* in his drawings the Eastern form, but he got the specimens I find when at Darjeeling.

That the birds which he described as *nipalensis* were really Hutton's *sivalensis*, is proved first from Dr. Scully's specimens procured in the same locality as Hodgson's types, and, secondly, by the passage in his original description, reproduced below, which I have printed in italics.

"Very brilliant green, *somewhat shaded with verditer blue on the nape*, belly and lining of the wings; tail paler than the body, and shaded externally with yellow; below and the tips and inner vanes yellow; throat and a broad half collar black; the collar completed dorsally with rosy red; a large longitudinal bar of sanguine lake color down the shoulders, just outside of the scapulars; bill intense coral red; iris pale straw; legs greenish grey; talons dusky; size large, 22 inches long by 26 wide, and 9 to 10oz. in weight.

"Female rather less, and without any red mark on the wing. Young, at first, wholly green, with a yellowish bill. Inhabits the Saul forest exclusively."

There remain, therefore, the birds of the Indo-Burmese region, far exceeding the Cingalese *eupatrius* in size, wanting the glaucous grey blue tinge on the nape and sides of head of true *nipalensis* (*sivalensis*), and wanting the huge bill of *magnirostris*.

They do not agree perfectly, *inter se;* the northern (or Sikhim Terai) birds are not quite so long tailed as the southern (or

Burmese); they have the mandibular stripes broader, and they have the base of the throat like the breast, and wanting, or nearly wanting, the yellow tinge, which, in some of the Burmese birds, is almost as bright as in *magnirostris;* but as a body they are well distinguished from the other three races, and there must be a limit to splitting up this form, and I therefore propose to keep them as one species under the name of *P. indoburmanicus.*

I DO NOT THINK that it has ever been pointed out in STRAY FEATHERS, that *Yunx indica*, Gould., No. 189 of Jerdon's Birds of India, was almost certainly founded, owing to some misapprehension, upon an *African* specimen, and is in no way deserving of inclusion in the Avifauna of the Indian Empire.

AT PAGE 436 OF VOL. III., Mr. Sharpe pointed out certain supposed differences, whereby *Dendrophila frontalis*, Horsf., of Java, Sumatra, and Borneo, was, in his opinion, separable from *D. corallina*, Hodgs., of India, Ceylon and Burmah. I cannot find, though I may have done so, that I have ever noted, that I have numerous Indian and Burmese specimens, exhibiting in a marked degree the alleged characteristics of both forms, and that in my opinion, therefore, Mr. Sharpe's diagnosis is invalid. I have not yet examined Javan or Sumatran specimens, and it is therefore *possible* that some differences, other than those that Mr. Sharpe has pointed out, *may* exist between the Insular and Continental races; but I think this unlikely, and for the present I think that all ought to stand under Horsfield's name.

ANOTHER WELL-KNOWN POINT, *viz.*, the identity of Blyth's *Propasser frontalis*, Jerdon's No. 744, with *P. thura*, of Bonaparte, Jerdon's No. 740, seems as yet never to have been noticed in STRAY FEATHERS.

BOTH JERDON AND BLYTH are certainly in error in uniting Hogdson's *Acanthoptila nipalensis* (= his *Timalia leucotis*) with his *Timalia pellotis.*

The mistake apparently arose from Hodgson's oversight in sending a specimen of the former mis-ticketed with the name of the latter.

The birds appear to be totally distinct, not even congeneric; but I will first reproduce Hodgson's original descriptions, which being contained in the Asiatic Researches (XIX., p. 182, 1836) are quite inaccessible to most of us here.

"*Sub-genus*, TIMALIA. *4th species*, new; NIPALENSIS, nobis. Nipalese Timalia, nobis.

Form.—Bill assimilating closely with the last-named species (*Pomatorhinus ruficollis*), but stronger and straighter; equal merely to the head in length, subarcuated only, but distinctly so, and perfectly entire. Culmen rather more carinated between the nares, the tect of which is less hard and less arched than in the typical *Pomatorhini*. Rictus more strongly bristled. Shafts of the head and neck-plumes spinous, as in *Cinclosoma setafer* (nobis.) Legs stronger, with more distinct scales; another approximation to *Cinclosoma*. Tail equal to the whole body and bill, consisting of 12 broad and straight, but frayed feathers, the extreme laterals of which are gradated by half the entire length of the tail, or doubly as much as in the foregone species.

Colour and size.—Above, with the flanks, thighs and under tail-coverts brown, paler and more olive beneath than superiorly; below from chin to breast rufescent, from breast to vent albescent, and both shaded with a tinge of the colour above; entire cheeks pure white; iris hoary blue; bill and legs dull dark plumbeous; the whole plumage black shafted; the outer vanes of the prime quills paled; sexes alike. Size 10 inches by 10, and 2·25 oz.; bill, 1; tail, 5; tarsus, 1·44; central toe, 0·93; hind, 0·56.

5th species; PELLOTIS, brown ear, nobis.

Characters.—Extremely similar to those of the last, but returning towards the typical *Pomatorhini* by its shorter and rayed tail.

Colour and size.—Above, dull olive green, inclining towards brown; thighs, vent and under tail-coverts the same, but paler; cheeks concolorous with the body; ear-coverts darker and brown; below white, tinted with rufous towards the head, and shaded with the colour of the thighs and vent towards them; bill above and towards the tip blackish; below pure plumbeous; legs pure plumbeous grey; iris hoary; whole plumage black shafted as in the last, and similarly spinous; tail closely rayed across. Size of the last, but not measuring so much in length, owing to the shorter tail, 9 inches by 10, and 2·25 oz; bill, 1·12; tarsus, 1·37; central toe, 0·87; hind toe, 0·5; tail, 4; sexes alike.

Now even these descriptions make it very clear that the birds are distinct, but the carefully finished pictures of both amongst Mr. Hodgson's drawings make this still more apparent.

Acanthoptila nipalensis is something like a gigantic edition of *Laticilla burnesi*, with a comparatively slender bill; in some respects recalling *Pyctoris longirostris*, with a very long, loose,

much-graduated, broad-feathered tail, a deep red brown above, with bright rufous breast and throat and pure white lores, cheeks and ear-coverts, while *Timalia* (*Malacocercus*) *pellotis* has a regular thick *Malacocercus* bill; a stiffer, shorter narrower feathered tail; a dull earthy brown above, with rather darker brown ear-coverts and dirty-white throat and breast. A perfect *Malacocercus*, except for the more or less conspicuous dark shafts to the feathers of both upper and under surface.

This, it may be thought, does not altogether agree with Hodgson's descriptions. I can only say that I would rather go by his figures, for in the case of a great many species, I have found his artists' pictures more correct as to coloring, to my ideas at any rate, than his descriptions.

As far as I know, no one has ever got either of these birds since Hodgson's time. Both are birds of the high hills in the interior of Nepal, from which no specimens have been obtained since his time.

At my request Dr. Anderson kindly looked out the Museum specimens of *A. nipalensis*.

Blyth only acknowledges two, but Dr. Anderson had, in re-arranging the birds, found three. All are very much faded and in bad order, so that the original colours cannot be certified; but one has lost its tail and much of the feathers of the head, and might belong to another species, but on the whole Dr. Anderson and myself both agreed that all three must be referred to *A. nipalensis*, and that *pellotis* was not represented. If Hodgson sent either of these as *pellotis*, it must, I think, have been simply by one of those oversights that do occur in sending away specimens.

I VERY MUCH REGRET to say that my specimen of the very peculiar form, which I described, *Ibis*, 1872, 410, and S. F., III, 409, as *Dumeticola cyanocarpa*, and which Mr. Brooks carefully examined with me and agreed to be new, though he doubted the birds being a true *Dumeticola* (or *Schœnicola*, as it must stand, *vide* S. F., VII, 38) has somehow disappeared. It may yet be found, but all the old portion of the Museum has been so re-arranged that it could hardly be overlooked, and I fear it is lost. This is the more vexatious that the form was a very peculiar one, and that no second specimen has come to hand, and that until it or some new specimen is re-examined, we cannot be certain of the genus to which it should be assigned.

IT MAY BE WELL TO DRAW attention to the fact that *Anthus montanus*, of Blyth and Jerdon, J. A. S. B., XVI., 435, 184?,

though a most distinct and well-marked species, indeed perhaps the most distinct of all the Pipits, and though well characterized by the describers, still probably, according to one school, lacks a name. This bird is clearly congeneric with *Anthus montanus*, of Koch, of 1816, which=*A. spinoletta*, and according to one school, Koch's dead name can never be re-applied to any species of the genus. I think they are quite wrong, and that their views are directly opposed to the spirit of rule (q) Pt. II, section A, of the Code, and therefore, do not propose any fresh name for the species. Jerdon's original name for the species, *rufescens*, could not stand, being a misapplication of one of Temminck's.

This species is confined to the Nilgheris, or may possibly extend from these to some of the other neighbouring hill groups and ranges of Southern India. It is even on the Blue Mountains far from common, and there are probably a few specimens of it in Europe. This may account for the extraordinary manner in which European ornithologists have calmly united this with one or other *Anthus*, to which it bears no resemblance.

It is perhaps, though so very limited in its range, one of the best characterized and most distinct of all the Pipits. Once seen it can never be mistaken.

ALTHOUGH DRESSER HAS UTTERLY ignored the matter and has stated that there is no record of the Hawfinch's occurring in India, I felt quite sure that there was, and I now find that I duly announced in the *Ibis* for 1869 (p. 456), that I had obtained two Hawfinches from Attock.

THE FOLLOWING REMARKS by Major God-Austen from J. A. S. B., XLVII, 16, 1878, deserve to be reproduced, although I personally, with a large series of both Assam and Tenasserim birds, at least a dozen of each, did not see my way to separating the two.

"I have compared a specimen from Sadiya of the bird hitherto considered as *Turdinus brevicaudatus* with the type in the Calcutta Museum, obtained by Col. Tickell in Tenasserim, and find that they are after all distinct. The Tenasserim form is very strong rufous on the breast, belly, and under tail-coverts; the spots on the secondaries are small and triangular, whereas in that from Sadiya they are large and tip the feather. The throat is also greyer in this last. In the *Ibis* for 1876, p. 354, Lord Tweeddale remarks on the highly-colored drawing by Tickell of *T. brevicaudatus*, and Mr. Gould has very probably figured an Assam bird, which should stand properly under the title of *T. striatus*, Walden, described in Ann.

Mag. Nat. Hist., (4), VII., p. 241, and which Jerdon had very probably compared with true *brevicaudatus* from the Burmah side and considered distinct. This bird is the one I refer to under the title of *T. Williamsoni* in J. A. S. B., Pt. II., 1877, p. 44. I have four specimens from Sadiya (Garo Hills and Munipur), in all of which the spots on the secondaries are rufous, while in a specimen, from the Mooleyit range, Tenasserim, obtained by Mr. Limborg, they are white, thus agreeing with Col. Tickell's drawing of true *brevicaudatus* from the same locality. This specimen is again not so rufous as the type in the Indian Museum, but this is a very variable character in this group, (as may be seen in *Pnœpyga squamata*, of which specimens white beneath are often met with,) and probably depends on age. After all *striatus* is only a variety of *brevicaudatus*."

I DON'T THINK I HAVE ever mentioned in STRAY FEATHERS, what I noticed in the *Ibis* (1870, 435) *viz.*, having obtained a specimen of the Cape Pigeon, *Daption capensis* (a Petrel, not of course a pigeon at all, though sailors so chose to designate it) *from the Gulf of Manar*, between Ceylon and the mainland.

IT SEEMS TO BE NOW generally accepted as a fact that our Indian Dove ("Turtur cambayensis, *Gm.*) is specifically identical with the African, T. senegalensis, *Lin.*, which latter name, consequently, has precedence.

IT HAS TO BE NOTED that according to Mr. Howard Saunders (I have not yet looked into the matter myself,) the pale Herring Gull, that I described S. F., I., 270, as *argentatus*, and that Dresser identified as *leucophæus*, Licht., is really the true *cachinnans* of Pallas, and should therefore, if this be the case, stand under this name. Again, he says, that the bird that I described under the name of *Larus occidentalis*, S. F., I., 273, is not the real *occidentalis*, but should stand as *L. affinis*, Reinh.

Both points are open to argument, but for the present we may tentatively adopt these views.

SPEAKING OF THE WIDE distribution of *Dendrocygna fulva* in America, Messrs. Sclater and Salvin remark :—

"Singular as this distribution is, it is still more remarkable when we consider that there exist no tangible grounds for separating the American bird from that called *D. major* by

Jerdon, which ranges through the peninsular of India and is also found in Madagascar."

The specific title *fulva* (Gm. S. N., I., 530, 1788) has of course precedence.

In my notes on the Swans of India, p. 101, I accepted Mr. Brooks' statement that the Swan obtained by Mr. Hodgson, in Nepal, was *Cygnus ferus*. The drawing taken from the fresh bird was not accessible at the time, and I saw no reason to question my old friend's verdict.

Having now obtained and examined this drawing, I am constrained to say that in my opinion he is in error, and that the species represented is *C. bewickii* and not *C. ferus*.

In the first place the bill is shorter and deeper than that of the latter; in the second place the distribution of colour on the bill is conclusive.

Nearly the whole bill is black; the terminal half of the bill is entirely black; on the basal half, the whole of the lower mandible is black, also the culmen and a broad band on either side; remain the triangular spaces in front of the eyes, and similar triangles on the sides of the upper mandible (the two triangles, base to base, forming a not very regular diamond,) fleshy yellow.

The entire plumage is snowy white, showing that the bird was adult; only the forehead and crown tinged with ferruginous buff—a peculiarity commonly observable in these swans.

Of course no adult *ferus* ever had the bill thus colored. I have laid the drawing beside the heads of both *ferus* and *bewickii*, and there can be no possible doubt that it refers to the latter.

While then *bewickii* must be admitted into our list, there is no sufficient reason, *at present*, for including *ferus*.

Besides the *Clangula glaucion* which was obtained in Oudh, (S. F., IV., 225) I see that Blyth remarks, "*C. glaucion*, was obtained by Sir A. Burnes on the Indus, and is figured among his drawings in the possession of the Asiatic Society."

I have several times heard of *Crex pratensis* being obtained in India, but I have never yet seen an Indian-killed specimen.

Blyth says: "The *Crex pratensis* is stated by the well-known Indian sporting writer "Purdy" to have been once shot by him in Oudh. I know of no other authority, for it as an Indian bird, but have seen specimens from Afghanistan."

Can any one give me any further reliable information as to its title to be included in our List of the Birds of India?"

JERDON INCLUDES *Fringilla montifringilla* (No. 752) in the "Birds of India," on what reads like very fair evidence, but I confess that I have my doubts of the occurrence of this species within our limits, although it very likely may occur in Wakhan, Badakshan and Cabool. As to the Simla and Mussouri habitats, I can only regard them as requiring confirmation, which I have altogether failed to obtain. I have never seen, nor even heard on reliable authority, of an Indian killed specimen of this species. Has any one else? Because, if so, let him speak.

REFERRING TO 912—PORZANA CEYLONICA, *Gmelin* apud *Jerdon* nec *Gm.*, the Marquis of Tweeddale makes (P. Z. S., 1877, p. 767) the following instructive remarks: I had already independently come to this same conclusion, but his Lordship was the first to publish it and put the whole question very clearly.

"Brown, (Illustr., p. 94, and XXXVII, "Ceylon," 1776,) described and figured under the title of THE *Rail*, this species from a Ceylonese example obtained by Governor Loten. At p. 96 he also described, and on plate XXXVIII he figured, a distinct bird from the same source under the title of *Rail*.

Gmelin (S. N., I., p. 716, No. 17) copied Brown's description of his *Rail* and bestowed on it the title of *Rallus zeylonicus*. But Gmelin, while correctly quoting p. 96 of the Illustrations, incorrectly referred to plate XXXVII, on which is depicted Brown's THE Rail. On Brown's description of THE *Rail* Gmelin founded no title; but when incorporating the Linnæan species *Rallus capensis* (Mantissa, p. 525) in his edition of the "Systema" (l. c. No. 11), and more or less transcribing the Linnæan diagnosis, he followed Latham (Synop. III, pt. I, p. 234. No. 8) and referred the Linnæan to the one described by Brown at p. 94, as well as to the one figured by Brown on plate XXXVIII. Latham made the identification with a note of interrogation. Gmelin, in both cases, associated the wrong plate with the pages containing Brown's descriptive remarks, and called both species *Rail*. As Gmelin's diagnosis of his *Rallus zeylonicus* does not apply to the ferruginous-breasted Rail of Ceylon, THE Rail of Brown, we must adopt the next title, that of Lafresnaye—*Gallinula eurizonoides*, Lafresn., Rev. Zool., 1845, p. 368. I cannot with certainty identify the bird described and figured by Brown under his title of Rail, (*Rallus zeylonicus*, Gm.); but it is apparently a gallinaceous bird—possibly *Galloperdix spadiceus* (Gm.)"

Letters to the Editor.

SIR,—I have, during the last three or four months, had peculiarly good opportunities of observing the different habits of the Waders in their breeding haunts. Full notes in regard to each and all of these that I observed I send for the new edition of "Nests and Eggs," but one curious general fact that came to my notice in regard to a whole community of these birds may be worth separate notice.

In July, I found five large colonies of these birds breeding in the middle of a large swamp called the "Mukku Dhund." Their breeding grounds were far removed from the haunts of man, and were dense tamarisk jungle, mostly composed of young trees growing in water from four to eight feet deep.

The first breeding ground I visited, I got out of my canoe and waded into it, the water being up to my chin. The birds had all completed their nests, but with the exception of one or two Blue and Purple Herons, none of them had laid eggs.

I was extremely careful to make no noise, half wading, half swimming, with nothing but my head above water; and, as soon as I was satisfied that the birds had not, with very few exceptions, as yet begun to lay, I stole out, got into my canoe, and paddled away. The clamour the birds made could be heard a long way off, and when inside amongst the nests the uproar was deafening, and some of the sounds most diabolical.

Some five days later, I returned with my canoe, laden with tin boxes to pack the eggs in, but on getting close to the place, none of the usual sounds met my ear; neither did I see any birds flying about the place, except one or two Blue and Purple Herons.

On wading into the jungle, I found that not only had the birds deserted the place, *but that they had carried away every single stick belonging to their nests too!*

Where, on my former visit, there were thousands of nests, there was now not a vestige of one to be seen, so clean swept was it that I almost thought I had mistaken the place, but a box, which I had on my former visit left in a fork of a tree, was clear evidence of my being on the original spot. The one or two Herons which had begun to lay on my former visit were the only occupants of the clump of jungle.

It took me a week to find the new ground to which the birds had taken themselves and their nests, and which was some three miles away. *This* place I was very careful not to go near until I was quite certain the birds were laying. Numerous other birds came and joined in, and in the course of

a fortnight the breeding ground extended some 1½ miles in length by about ½ a mile broad, and contained the following species: *Ardea cinerea*, *A. purpurea*, *A. torra*, *A. intermedia*, *A. garzetta*, *Buphus coromandus*, *Nyctiardea nycticorax*, *Anastomus oscitans*, *Ibis melanocephalus*, *Phalacrocorax fuscicollis*, *P. melanognathus* and *Plotus melanogaster*.

Each of the different species were more or less separate, and the three Egrets, *A. torra*, *A. intermedia* and *A. garzetta*, though apparently all mixed up together, were still, as far as my observations went, distinct. I noticed not only in this particular ground, but in others also, that *A. garzetta's* nests were all huddled close together but on the *lowest* branches, *A. intermedia's* nests were also close together, but were above those of *garzetta*, while *torra's* nests were on the topmost branches. Several colonies which I watched from a distance peering round the trunk of a tree with nothing but my head above water, exhibited this arrangement in a marked manner, the birds being seen in three tiers. Of course I do not mean that there were no exceptions to this rule, but it was the general way in which the nests were arranged.

P. melanognathus and *B. coromandus* were the only birds which seemed to build anywhere and everywhere, their nests being more or less scattered all ever the ground.

I have not entered the Spoonbill, but the fishermen tell me it breeds there in October, and I noticed the other day that they were just coming in together with *Tantalus leucocephalus*.
—Yours truly, S. Doig.

Sir,—Allow me to correct a serious mistake which occurs at p. 150 of "S. F.," Vol. VII. The eggs and specimens referred to of *Myiophoneus horsfieldi* were obtained at Purandhur, a hill sanitarium about 15 miles south of Poonah, and not as was originally stated Poorbander, in Kattiawar.

E. A. Butler,
Capt., 83rd Regt.

Hyderabad,
12*th November* 1878.

Sir,—At page 112 (*ante*) I said that I obtained at the Manchur "*H. albicilla and eggs.*" I did not get the eggs of the European White-tailed Fish Eagle. I should have written "*H. albicilla* and *H. macei* and eggs."

Please notify this correction in your next issue.

J. A. Murray.

Kurrachee,
November 1878.

SIR,—To-day, the 16th September, I procured a fully grown young bird of *D. inornatus*, together with one of the old birds.

This young bird confirms the opinion (if further confirmation were now necessary after your paper, IV., 407) that *D. longicaudatus* is the winter plumage of *D. inornatus*.

The young one is in quite the *longicaudatus* or rufous plumage, and has the *longicaudatus* tail. It is hardly so rufous as an old winter bird, and its tail is a little shorter, but this might be expected of a young bird.

As the young bird is, in some cases at any rate, perfect *longicaudatus*, (I do not forget that Captain Bingham got grey young ones also,) this question is now finally set at rest; since the exception to which you drew attention, IV., 408, a typical *longicaudatus*, shot in July, must have been in all probability a fine *young* bird and not an adult as you supposed.

Most, if not all, of the *Drymoipi* have a breeding plumage distinct from the winter dress, and the plumage of their young. The summer plumage is greyer and much less rufous, and the lower parts lose their warm tint and become pale creamy white.

The long winter tail of a rufous brown is changed for a dark grey and shorter one, with light grey or whitish under surface.

I think it will be found that every unstreaked or unstriated *Drymoipus* has two plumages, differing much from each other. The difference of plumage is more marked in the male.

W. E. BROOKS.

SIR,—I AM not sure whether I reported having obtained a chestnut Bittern on the E. Narra. From Vol. VII., S. F., I see (p. 171) that it has not been recorded from Sindh.* I shot a male bird in full breeding plumage on the 13th September 1878, and on the 29th October (two days ago) I shot a young bird quite close here. I also saw a young one about a month ago with Mr. Murray, in Kurrachee, who asked me what it was. He said it had been shot by some one, in Kurrachee. I got a very nice specimen of a male "*Accipiter nisus*" the other day, also a female *C. mahrattensis* which has the white marks on the primaries, and the lateral tail-feathers with af ulvous tip.

HYDERABAD; S. DOIG.
31*st October* 1878.

SIR,—I HAVE just returned from paying a visit to a large breeding place of *Phalacrocorax carbo*. My egg-man brought me some 50 odd eggs the other day, and said they belonged to what

* But *vide ante* p. 177.—ED.

he called the Large Cormorant, and so, to make sure, I went myself to-day and secured some 200 more eggs.

The breeding ground was in the middle of a swamp called the Samara Dhund, and the nests were placed on old withered Tamarisk trees standing in water about 8 to 10 feet deep. The nests were large platforms of sticks, about 2 feet in diameter one way, and about 2 feet 6 inches the other way, that is, they were more oval than circular. The eggs were laid on a thin bedding of rush and grass, and the greatest number I got in one nest was 7. Some had only 3, others 4, 5 and 6; the latter seemed to be the normal number, though some nests had only four young ones just hatched. It evidently was an old breeding ground, as I could count three or four old nests under the present ones, so that the nests were sometimes three feet thick. There were no other kinds of Cormorants, nor in fact any kind of aquatic bird, to be seen in the swamp except a few Pelicans. I shot six of the birds, from whose nests I had taken eggs, and subjoin their measurements. The birds were in different stages of plumage. Some had their neck nearly white, with a large whitish patch round the gape and on throat, also with a whitish patch on the thigh, the rest of the plumage being black, with a sort of bronze reflection. Others had the white hairs on the neck either just disappearing or coming, I don't know which, and others were quite devoid of white about the neck, but had the white gular patch and thigh patch. I was very much astonished to find so many as seven eggs in one nest, but there was no mistake, as I collected them all myself. The nests were only about 4 to 6 feet above water, so that I had nothing to do but stand up in the boat and gather. The total length of the breeding ground was about one mile by about 80 yards wide.

Dimensions.—1005. *Phalacrocorax carbo*, Lin.

	Male.	*Male.*	*Male.*	*Female.*	*Female.*	*Female.*	Remarks.
Length ...	32·25	33·	33·	30·25*	31·62	31·62	Both male and female have the white hair-like feathers on the neck as well as the white thigh patch.
Expanse ...	54·5	55·	56·62	51·	51·62	53·5	
Tail	7·	7·5	7·62	6·75	7·	7·25	
Wing ...	13·5	13·5	13·62	12·5	13·25	13·5	
Bill at front...	2·5	2·5	2·5	2·37	2·5	2·25	
Bill from gape	4·	4·	4·	3·5	3·75	3·75	

*This bird was much lighter in color, especially on the breast, which showed a good deal of white, apparently a young bird in immature plumage.

EASTERN NARRA DISTRICT, S. DOIG.
16*th November* 1878.

Sir,—I beg to inform you that last year I shot a Woodcock, (*Scolopax rusticola*), 17 miles south-west of Belgaum, when Snipe-shooting in some rice fields about X'mas time. The fields were surrounded by jungle.

About the same time Colonel W. Peyton stumbled on one, by chance, in a nullah when following up a tiger, and sent me the skin.

He shot the bird near Jagalbet, in Kanara, on the border of the Belgaum Collectorate.

He informed me at the time that he had only seen four during a long residence in Kanara (10—12 years), but I don't think any one in these parts ever thinks of regularly searching for the birds.* I believe the Woodcock I shot is the only one that has been *known* to have been shot in the Belgaum District.

It may interest you to know that the Madras Rufous Woodpecker (*Micropternus gularis*) lives chiefly on the larvæ of tree-ants, and in this way its plumage, and especially its tail, being so generally smeared with some sticky stuff, may be accounted for.

I have frequently seen the birds hammering away at ants' nests,† and have shot them covered with ants. In "Jerdon" it is stated, if I remember rightly, that the gum on their feathers is a vegetable product, but the above is, I believe, the right explanation.

J. S. Laird.

Note.—This issue should stand as Nos. 3, 4 and 5; by an oversight on the first page it stands as Nos. 3 and 4 only.—Ed.

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* See S. F., V., 140 & 504; VI., 458. The fact is that the Woodcock is found as a rare straggler everywhere in India and Burma. Large numbers go south yearly from the Himalayas to spend the winter in the Hills of Southern India and Ceylon, and smaller numbers similarly migrate to the higher hills of the Burmo-Malay countries; some few here and there drop by the way or are caught at the time of migrating, so that there is scarcely a district in the empire from which I have not some record of their occurrence. Even in the most unlikely places of all, Allyghur, Boolundshur, Agra, Cawnpoor, &c., single specimens have occurred. Dr. Armstrong even caught one in the *Bay of Bengal* in Lat. 18°, 40′, N. and Long. 92°, 28′, E.—Ed.

† In which like their Northern congener, *Micropternus phaioceps* (*vide* S. F., IV., 511) they probably lay their own eggs.—Ed.

STRAY FEATHERS.

Vol. VII.] MARCH 1879. [No. 6.

A History of the Birds of Ceylon, by Captain W. Vincent Legge, R.A., &c., &c.

The first part of Captain Legge's splendid Monograph of the Birds of Ceylon has recently appeared.

Two other parts will complete the work, and I can only say that, if the remaining portions are up to the standard of the present instalment, the work as a whole will equal, if not surpass, any other work of the kind that has ever appeared.

The paper is excellent, the printing first class, and as regards the plates, they are amongst the very best that that real, though now-a-days unutilizable genius, Mr. Keulemans has ever produced.

The accessories, therefore, are all that can be desired—nothing like them can be produced in India—and even at a first glance the thick volume before us must extort admiration.

A more careful examination, moreover, of the work will only deepen and intensify the pleasure which every Indian ornithologist must feel on first becoming acquainted with it.

Captain Legge has thoroughly worked up his subject, and to eight years of labour amongst the birds he deals with, in their native wilds, has added two years of study in the libraries and collections of England.

Nothing can exceed the loving pains which he has bestowed in elaborating the life histories of his feathered friends; and, while scarcely anything of importance that was on record has escaped him, he has added, from his own personal experiences and researches, much that is new and of great interest.

Although, of course, only birds that occur in Ceylon will be included, this work will embrace, I should suppose, over 350 species, of which more than 300 are common to other parts of India, so that it is not only ornithologists in Ceylon, but of all India, who are interested in and should support Captain Legge. He has as yet, he tells me, scarcely any Indian subscribers, but I cannot doubt that, when the nature and really exceptional merits of this History of the Birds of Ceylon

become known, he will have more than he is able to supply copies to.

The work appears to me a perfect model of what such a work should be, admirably written, admirably arranged, saying just so much as is necessary of each species, free from all useless repetitions, above all not overloaded with quotations from innumerable writers, all saying the same thing, the great fault of most modern books on ornithology—my own "Nests and Eggs" being amongst the very worst in this respect.

And here I take the opportunity of saying this much in my defence. "Nests and Eggs" are only intended as a record of materials, from which whoever writes (as I once hoped to do, and might yet, were I spared long enough) the History of the Ornithology of our Indian Empire may safely, and without fear of captious contradictions, generalize. It is in fact *(si licet, &c.)* like one of those volumes of data published under the direction of Herbert Spencer, to exhibit the grounds and evidence on which his more abstract conclusions are based.

Of course, in a work of this magnitude, there are points in which I do not agree with Captain Legge. He uses names for instance here and there which, according to my views, have not priority; he makes some identifications in which I do not concur; I miss many important synonyms that I think apply, from amongst the lists of these which head the articles on each species and so on, but *quot homines, &c.*, he is just as likely to be right as I am; and though I must, in the interests of science, to ensure a thorough thrashing out of moot points, gradually notice these, it will only be in view to this and not with any pretence of finding fault, since, to my mind, this History of the Birds of Ceylon merits all possible praise, and Captain Legge himself the support and gratitude of all Indian as well as merely Cingalese ornithologists.

ALLAN HUME.

Ceriornis blythi, Jerd.

No sufficient or satisfactory description of this fine species has, it seems to me, as yet been published; but, having carefully examined the type which Dr. Jerdon deposited for some time in my museum, and having, by the kindness of G. Damant, Esq., C.S., been furnished with fine specimens of adult and young males and females, I am able, to a certain extent, to supply the deficiency.

This species in the breeding season, and when fully adult, exhibits the horn-like wattles, and probably also the long,

pendant gular apron, characteristic of the genus, but the specimens that I have seen, though some of these were certainly adult males, entirely wanted these appendages.

However, Mr. Damant informs me that in life one of the males he sent me had horns three-quarters of an inch in length, and of a bright azure blue.

According to notes furnished to me by Dr. Jerdon, recorded from the type, an apparently adult male, before he skinned it, had the chin and upper portion of the throat and the orbital region, which are bare, yellow, here and there tinged greenish; the bill greenish horny; the legs and feet dull yellowish horny; and the irides pale brown.

Not improbably these colors may vary somewhat according to sex, age and season.

Dimensions of Adult Males from dried skins.—Length, 21 to 23; wings, 10·25 to 10·75; tarsus, 3 to 3·5; mid-toe, 2·3 to 2·5; its claw, straight, 0·8 to 0·9; spur, about 0·6; bill at front from base of frontal plumes, 1·0 to 1·1; corneous portion only 0·55; from gape, 1·3 to 1·4; from end of bare gular skin to tip of lower mandible, 2·3 to 2·9.

One fine male before me has two spurs on the same level on one leg. I presume this to be a purely accidental monstrosity.

The following is a description of the plumage of the adult male:—

The frontal plumes, and a narrow streak on the centre of the crown; a narrow band surrounding the bare gular space, and running up to the ear-coverts; these latter and a broad stripe running backwards from them nearly to the occiput, black; the rest of the head, the whole neck all round, and the upper breast, bright orange maroon, but with a ferruginous tinge in places, owing to the basal portions of the feathers, which are pale ferruginous yellow, showing through; the occipital feathers are slightly lengthened, forming a full short crest; the lesser upper wing-coverts are uniform bright maroon red; the back, rump, scapulars, and median wing-coverts, and all but the longest upper tail-coverts, much resemble the same parts in *melanocephala;* the feathers are black, with numerous narrow, wavy, buffy or fulvous fawn-coloured bars, and near the tip a white spot in the centre surrounded by a dove grey halo and a maroon blotch on each side; the spots being smallest and the maroon lightest on the upper back, and largest and richest in tint on the rump; the longest upper tail-coverts want the rufous and white spots, but are very broadly tipped with greyish white or albescent, having a subterminal rufous quarter-inch bar, and a very narrow terminal black one; the tail is black, the basal three-fifths with very numerous narrow, transverse, irregular, freckled

buffy or fulvous fawn bars; the quills and greater primary coverts are similar to the basal portions of the tail; the whole of the lower breast, abdomen, and vent a pale dove-brown or dove-grey, each feather with an inconspicuous ill-defined somewhat paler patch towards the tip; the flanks and sides of the breast are marked like the back; the tibial plumes are more or less ferruginous, interiorly, but exteriorly, are narrowly barred brown and fulvous; the lower tail-coverts are dusky, faintly barred like the quills, broadly tipped with very *pale* dove-brown, or brownish white, and tinged laterally and at the tips with rufous; the wing-lining (except the larger lower coverts, which are satin grey) is bright ferruginous, redder towards the tips and yellower towards the bases of the feathers.

The *female* is considerably smaller.

Length, 18 to 20; wing, 8·5 to 9; tarsus, 2·9 to 3·1; mid-toe, 2·2; its claw, straight, 0·7; bill from frontal feathers straight to point, 0·98; from gape, 1·4.

The ground of the entire mantle is black, each feather very *finely*, almost microscopically, freckled, chiefly along a broad central band with more or less rufous buff, and with one large, irregular zig-zaggy, somewhat arrowhead-shaped, spot towards the tip; in connection with this spot one or more irregular wavy bars generally go off right and left towards, or to the margins of feathers, which bars are often more ferruginous than the rest of the markings: these spots are most conspicuous on the interscapulary region, and almost disappear on the rump and upper tail-coverts where the frecklings on the other hand extend over nearly the whole feather; the tail is blackish brown, thickly set with irregular, mottled, wavy transverse bars of ferruginous and ferruginous buff; the longest upper tail-coverts partake of the deep ferruginous tint of the tail markings; the primaries and secondaries much like the tail, but the ground a shade browner, and the markings less thickly set and nearly confined to the outer webs; the coverts and tertiaries partake of the characters of the mantle, as do the head and back of the neck, though in both these latter the markings are more bar-like and much less conspicuous.

The chin and upper throat are greyish creamy; the feathers margined with greyish brown, and with traces of a spot of this running in almost to the shaft, about half way up the feather; the rest of the front and sides of the neck and upper-breast in much the same style as the back of the neck and mantle, but the ground brown, the frecklings duller in colour and more diffuse, and the spot only indicated.

The rest of the breast and the abdomen a sort of greyish creamy, thickly set with freckly, imperfect bar-like brown

markings, having a tendency to mark out and define plain patches or spots of the ground colour, towards the tips of the feathers, analogous to the spots on the upper surface.

The tibial plumes and some of the vent feathers regularly and closely barred hair-brown and dull buff; the lower tail-coverts brown, rather dark on the terminal one-third, where they are freckled and blotched with ferruginous buff, and with a more or less conspicuous oval, purer buff spot or drop just at the tip.

The lower surface of the quills and their greater lower coverts grey brown, with a few pale buff spots or markings on the inner webs at or towards their margins; the rest of the wing-lining deep brown, profusely spotted with ferruginous buff.

From the female of *melanocephala* it is at once distinguished by the black and buff of the upper surface, so much richer and darker in tone; altogether different from the comparatively grey upper surface of *melanocephala*. From the female of *satyra* it equally differs; on the upper surface it is blacker and less ferruginous; on the lower surface it is paler and wholly wants the warm ferruginous buff of that species, which in the present is replaced by greyish creamy. After they have once been seen, unlike the females of the *Gallophasis* section of the *Euplocami*, the females of the several species of *Ceriornis* can be as easily recognized as the males.

The young males show the transition from the female to the male plumage, just as do those of *melanocephala* and *satyra*.

A. O. H.

Further observations on Reguloides superciliosus and Reguloides humii, also on Reguloides subviridis and Calliope yeatmani, Tristram.

By W. Edwin Brooks.

I have lately had a few opportunities of hearing the note of *Reguloides superciliosus*, and it is as distinct as possible from that of *R. humii*. It is a rather loud and distinct shrill "twee;" something intermediate between the "chink" of the Chaffinch and the common note of the Yellow Wagtail, (*Budytes rayi*) will give an idea of the note, except that its note is not nearly so loud as those of the two birds above mentioned. Now the note of *Reguloides humii* is a truly Phylloscopine "tis-yip," as Blyth calls it, similar to that of the Willow Wren (*P. trochilus*), but much shriller, and I think louder.

I had three most excellent opportunities of making quite sure about the very distinct note of *Reguloides superciliosus*, as I had the bird in each case alone in a rather thinly-foliaged tree, each time I saw the bird most distinctly as it fed from one tuft of leaves to another, and I heard it call repeatedly before I shot it.

In addition to its ordinary call, *Reg. humii* has a double note, rather like a rapid double repetition of the call. This it sometimes utters in the plains during the cold weather, and in its Himalayan breeding haunts, the double note is constantly heard. Any one accustomed to the notes of this little bird can make perfectly sure of the species before shooting it, and the same may be said of the peculiar "twee" of *Reguloides superciliosus*. All the Willow Wrens with which I am acquainted—and as a whole I have observed them as much as any one—have remarkably distinct or different notes. There is no difficulty whatever in procuring the bird you wish from the note alone.

Having notes utterly distinct, and having, as formerly pointed out, distinct characteristics in plumage and colour of soft parts, I think the question of the distinctness of *Reguloides superciliosus* and *Reguloides humii* is a settled one; no matter how closely they may be thought to resemble each other. In faded plumage there is much resemblance, but even then, *the yellow lower mandible, and pale legs and feet of superciliosus*, are a sufficient guide. As far as colour is concerned, the greenest *Phylloscopus* can fade to an ash grey. I have seen the deep olive green of *P. affinis* and its yellow lower parts all gone, and only a little yellow remaining on the supercilium. So it is easy to see that comparisons, to be of any real value, should be made with fresh autumnal birds. This I have done. The lower mandible of *R. humii*, I should have observed, is of a dull whitish brown, and the feet are dark brown, like a Chiff-chaff's.

Reguloides superciliosus is a rather scarce bird here; and you may shoot forty *humii* while you get one *superciliosus* in places where both occur.

The longitudinal range of *R. humii* must be extended much more to the east than we at first supposed. I heard it twice close to Calcutta, and also at Burdwan, which is 66 miles to the north-west of Calcutta. At Muddapur, where I live at present, 183 miles north-west of Calcutta, and not far from the longitude of Mount Everest, it is a most abundant bird—even more so I think than it is in the North-West Provinces of India. Down here, the birds are not quite so rufous or fulvous about the head, but they have the identical peculiar notes. Some collected here in early autumn have very dark heads, as dark as in *Phylloscopus lugubris*; the top of

the head having dark blackish olive immediately adjoining the supercilium. This extends to the nape of the neck, leaving a distinct greenish grey coronal streak between the dark bands. I have shot some here with dark heads, although they fall short of Shillong examples in this respect. There is, however, no difference of note, but absolute identity in this respect. I, therefore, think the dark birds cannot well be separated specifically from the rest, although we never see a dark bird from the North-West. If the dark-headed bird were held to be distinct, it would be impossible to say where one began and the other ended. Even in new feather, no dark-headed bird is seen in the North-West. Young greenish birds from both districts perfectly accord.

When speaking of the note of *R. superciliosus*, I forgot to say that it is more like that of *Reguloides subviridis*, except that the latter's is a distinctly double note, while that of *superciliosus* is single, and much louder.

I have lately been shown April examples of *Reg. subviridis*, obtained at Gilgit in the north part of Cashmere. Where this obscure little bird goes to breed is yet unknown. It is as much a western or north-western species in India as *superciliosus* is eastern ; and I don't think it would be procured further east than Allahabad.

This species is not well known, and as one of my friends, in spite of what I have written, suggests that it is the young of *Reguloides humii*, a brief notice of it here will not, perhaps, be out of place. It is like a pale-toned *Reguloides proregulus*, without the yellow rump patch, with brighter yellow about the head, and with the same distinctly defined dull yellowish coronal streak. By "distinctly defined," I mean that the edges of this central head stripe contrast abruptly with the other colour of the top of head, and are not blended into it as in the cases of *superciliosus*, *humii*, *erochroa*, and others. The coronal streak of *maculipennis* is of the *proregulus* distinct class. The distinct coronal streak of *subviridis*, as well as the distinct tone of plumage, and its most thoroughly distinct voice, yellow bill below, and paler legs and feet, amply serve to distinguish it from *Reg. humii*. The absence of the yellow rump separates it from *R. proregulus*.

The *Reguloides*, of which I have spoken, after all, don't resemble each other so closely as some of the *Hypolais* and *Acrocephali* do. The Larks and Pipits, too, are much more difficult to those who don't know them well.

There is a great tendency now-a-days to unite birds that differ to the utter destruction of ornithological science. Its chief charm lies in the closely-affined species. This lumping system is even worse than making bad species; and speaking

of bad species puts me in mind that *Calliope yeatmani* must be suppressed.* I have an accurate drawing of the type, and I shot near Calcutta a young bird most perfectly according, especially in proportion of wing primaries, with the type in Canon Tristram's Museum. It has one red feather coming on the throat.

To return to the subject—Observation of the birds in life is a great assistance, and home observers, with only dry skins before them, must not make too sure when their conclusions are at variance with the observations of the men who know the birds and hear them as well as see them. The colour of the soft parts in *Reguloides* is of great use, especially late in the season, when they are much faded in plumage. In describing *Reguloides subviridis*, I laid great stress upon its peculiar note, and its very clear coronal streak. The coronal streak of *R. humii* is often invisible.

Since the foregoing observations were written, I have had the pleasure, thanks to the Editor's kindness, of examining a collection of *Phylloscopi* and *Reguloides* made at Moulmein in British Burmah. There were 40 *Reguloides* of this type, and every one of them was *superciliosus*, so it must be a rather abundant bird there in the cold season. The whole 40 were so thoroughly characteristic that not a single one could possibly be mistaken for any other species. To the points of specific difference from *Reguloides humii* that I have formerly pointed out, must be added the bright sulphur yellow axillaries of *superciliosus*.

To recapitulate: The bright green upper surface, the silky white lower surface (as in *P. sibilatrix*), the blacker wings and tail, causing the light edgings of tertials and wing bars to contrast very strongly, and the distinct double wing bar against the single one, as a rule, of *R. humii* mark *Reguloides superciliosus*. When newly killed, we have the additional strong points of the yellow lower mandible of the bill, and the pale legs and feet. These latter characteristics can be seen frequently even in the dry skin. In very old skins dark legs and feet often become quite pale, and I have known pale legs and feet sometimes dry, very dark; indeed legs and feet of precisely the same colour when fresh, are at times of very different tints when dry. This should be borne in mind by those who find now and then dark legs and feet where they should be pale. Strong as all the characteristic points regarding colour are in *Reg. superciliosus*, all idea of identity vanishes when once its very distinct note is heard. I could now procure this species by its note as certainly as I could find any of our most familiar favourites.

* As I told you when Dr. Tristram described it.—Ed.

Gleanings from the Calcutta Market.

I DO not know *what* I should do in Calcutta, tied as I am to the desk, and scarcely ever able to get away far enough to find any decent shooting, if I had not the dear old market to fall back upon.

It is not handsome—its warmest admirers cannot pretend that it is; it is all points and angles, cross questions and crooked answers, a thing of quips and querks, like that rumbustical, talkative, argumentative Municipal Committee that manages, or as some think, mismanage it; but still it is the one place, where daily hundreds, sometimes thousands, of wild birds, dead and alive, are brought to help fill the craving maw of India's Metropolis, and where priceless specimens that may be searched for vainly elsewhere throughout a lifetime, are, every now and then, turning up.

To me the market is as good as is the twelve million francs lottery, now just drawn or drawing, to the Parisian.

It is a never-ending source of pleasing but innocuous excitement.

Every morning, just at daylight, I am at the market; each day, I say, now I am going to make a great hit to-day. Generally I am disappointed, but then one can't always be in luck, better luck to-morrow, and so on; and just often enough to keep up one's interest one *does* get a good bird, and once in a way a *very* rare and valuable one, and there is always the hope and the chance that one *may* get something even better than one has ever got before, and the morning's chance is something to think of, as one falls asleep at night; something to encourage one to turn out of bed an hour before daylight; something outside the perpetual grind of the official mill; a case not tied up in red tape; a matter in which one can really take an interest, as one can manage it properly and in one's own way without the interference of half a dozen other people who know nothing about it.

This is, in this respect, a delightful contrast to all one's official work. The fundamental principle, as is well known, of all public administration is to get hold of a man for a particular work, who knows something about it, and then to put him under some other man or men, who know nothing about it, but who, conscientiously anxious to earn their pay, "meddle and muddle" in every case, and loyally take care that *nothing* is done.

The safe man, always the favorite of Government, is the man safe to do nothing because he has no ideas, and it is the

safe men, who are always put over the unsafe fellows who have ideas, and *might*, if not properly sat upon, do *something*, some fine day, and *of course* "ruin the *Empire*." If you know nothing about a subject you have a good chance of being put to direct, and control other people who do; but if you really understand any branch, you are certain to have some one, who knows nothing about it, placed over *you*, to prevent your rashly utilizing your knowledge.

Cela devient ennuyant, and so even such a little business, as spotting rare birds in a market and securing them then and there, becomes interesting. If I went down to the market on account of any Government, and found, say, a *Macrorhamphus* or *Pseudoscolopax semipalmatus*, and recommended its purchase for four annas, I should first be told that it was too dear; second, that it was not wanted; third, that I had better purchase three *Nettapus coromandelianus* (a bigger and much handsomer bird) at a rupee a piece. It would be no use my urging that the *P. semipalmatus* was an excessively rare and valuable bird that would be cheap at a gold mohur, and that the Cotton Teal per contra was one of the commonest of birds and quite worthless for our purposes. A. B. would see no reason to modify his opinion, and P. Q. would add their initials and quite concur. But then luckily the Treasury would have to be consulted, and they, "in the face of the existing financial pressure" (and of course there is *always* a financial pressure when you ask Government for money), would regret their inability to sanction the Rs. 3, and so it would come all right after all, for *nothing* would be done.

Under such a dispensation, one would cease, after a certain number of years, to take any very vivid interest in going to the bazaar. Luckily complex as our administration, especially our municipal administration is, and interfering as it does with most things on earth, and in the heavens above the earth, and the waters under the earth, it still leaves one free to exercise common sense and skilled knowledge in bazaar purchases, and so year after year an unflagging interest in this tiny piece of relaxation is maintained.

I have for many years now steadily attended the market whenever I have been in Calcutta; and I think it may be useful to make a few remarks on the species that I have noticed there.

This market, too, is really a remarkable one; it is not like Leadenhall, fed by half a continent. All we see in it—I mean of course in the way of birds and game—has been procured within a radius of 25 miles, the great mass of the birds within 10 miles from the stalls where they are sold; yet two

and three thousand birds will come in some mornings during the cold season; and here Blyth and I have met with many of the rarest birds—birds that have never or scarcely ever been obtained elsewhere in India. Here Blyth obtained the only specimens of *Ardea goliat*, ever procured in India, almost the only *Phalaropus fulicarius*, the only *Querquedula formosa*, the second *Pseudoscolopax semipalmatus*. Here I procured three! more of these latter—a splendid male of *Querquedula falcata*—another of *Q. angustirostris*—an *Eurynorhynchus pygmæus*, and other good, though not *quite* such rare, birds as these.

There is scarcely a less likely looking locality than the 1,500 odd square miles, whence these rarities have been drawn; densely populated, devoid of all special physical attractions; but it is *steadily* and *exhaustively* worked, and hence the results. Probably there are scarcely any 1,500 square miles in the whole empire that if equally exhaustively worked would not yield more.

People write continually saying, I am in such a bad place for birds, what *can* I do here, &c., &c., the fact being that there is no single spot in India where an ornithologist, if he will only work hard and steadily, may not get lots of good birds and add materially to our knowledge of the distribution of species.

The market, of course, chiefly depends for its supplies on seasonal visitants, and it is only from November to the end of April that it is much worth visiting. During one hot season that I remained in Calcutta, I found the market generally very bare, scarcely anything being brought there but Cotton and Whistling Teal and Water Pheasants; though an occasional Snipe, Snipet and Plover or Duck, that for some reason had not migrated, now and then appeared.

I shall treat of the market as it appears from December to March.

And here the first thing that strikes one is, what wonderful things some people in Calcutta, beguiled by their khansamahs, *do* eat.

They do draw the line at Vultures; there was a miserable draggle-plumaged, broken-winged *Gyps indicus* there one day. "How much?" said I to the stall-keeper. To my astonishment he replied, "This, sir, is *not* good to eat."

But Little Cormorants, Gulls, Terns, Paddy-birds, Herons, Pelican Ibis, and almost every shore and water bird, including Water Pheasants, are bought freely by the *khansamah jee's* and cooked for and eaten by *some* body.

Some rudimentary conception of the shape of birds' bills and legs would be useful to people in Calcutta. I was dining out one day and saw a dish of unmistakeable "Did-he-do-it's" handed round as Pigeons. Another time, quite recently, a lot

of *Actitis glareola* (worth about 1 anna a piece) were brought as snipe. "Hullo," I said, "those aint snipe" (snipe being worth 4 annas a piece). "Snipe hei?" said my host. "Han, Saheb, esnipe hei," said the butler. "Yes, it's all right, *he* says they are snipe, and *he knows*!"

What bird a Pelican Ibis or Coromandel Shell-eater *can* do duty for, I cannot say—Geese perhaps; but I have several times seen them bought by khansamahs for 6 to 10 annas each, when Geese were at a rupee or more.

Of course common Quail, as well as the blue-breasted; heaps of Wagtails, Pipits of sorts, short-toed Larks and the like, (all of which are *Ortolans* be it understood), besides Crow Pheasants, Kingfishers, and all kinds of miscellaneous birds are seen from time to time; even a Brahminy Kite was sold before me the other day with two Paddy-birds to a swell butler, who doubtless duly served it up as "*Game*" to some one. But it seems needless to enumerate all these, as the chief interest attaches to the shore and water birds, which constitute nine-tenth or more of the supplies.

Four species vastly exceed in numbers all others during the cold season; these are Cotton Teal, Snipe, Common and Pintail, and the spotted Sand Piper (*Actitis glareola*). It is very difficult to estimate such a thing, but I have guessed that during the moonlit half of the month, some 200 of each of these are brought in as an average daily.

During the dark half of the month much fewer come in—the birds are mostly netted; and they cannot work the nets as successfully on dark nights, and on cloudy foggy nights they often catch next to nothing.

I will enumerate now all the species of shore and water birds that occur in the market, including one or two that Blyth got, but which I have never yet met with.

842.—*Glareola orientalis, Leach.*

Very rare; I have only twice, I think, seen it brought into the market.

843.—*Glareola lactea, Tem.*

Occasionally half a dozen or so.

844.—*Squatarola helvetica, Lin.*

I don't think that on an average above eight or ten come in during the whole season, but I once saw over fifty.

845.—Charadrius fulvus, *Gm.*

In the early part of the cold weather, and again towards the end of the spring, these are brought in in enormous numbers.

During the greater part of the cold season they are brought in almost daily, but only in small bunches. I find that on the 26th of April, I noted "enormous numbers of Golden Plover, all in full breeding plumage are still coming in;" but after the first week in May they had altogether disappeared. Where these birds breed is still a puzzle. I have watched them in several parts of the country, Blewitt in others, the Khan Saheb in others, Cripps in others, &c., &c.; in every case this species, after assuming the full breeding plumage, has disappeared before the 15th May, generally by the 1st May. We have eggs, supposed to be theirs, though I think this doubtful, from the Mekran Coast. But all the millions that throng our Indian meadows and uplands don't go to the Mekran Coast to breed we may be sure. Do any really breed anywhere in India, or in the Indian portion of the Himalayas?

846.—*Ægialitis geoffroyi, Wagler.*

This is only very rarely brought into the market.

847, 848, 849.—*Æ. mongola, cantiana, dubia.*

A few of each at least every other day. *Æ. minuta* I have never met with in Calcutta.

854.—*Chettusia cinerea, Blyth.*

These are brought in occasionally, chiefly during the early part of the season. The seasons, too, vary; some years this species comes in, in numbers, while in others very few are seen.

855.—*Lobivanellus indicus, Bodd, and* 857.—*Hoplopterus ventralis, Cuv.*

Are both often brought in, but in much smaller numbers on the whole than the preceding.

858.—*Esacus recurvirostris, Cuv.*, and 859.—*Œdicnemus scolopax, S. G. Gm.*

Both extremely rare. Some years none are brought, and probably 10 or 12 of each are the greatest number ever brought in during one season.

860.—*Strepsilas interpres, Lin.*

Blyth got this in the Calcutta Bazaar. I have looked for it for years in vain.

867.—*Scolopax rusticola, Lin.*

I saw one specimen in the Calcutta market many years ago in the first week of November. I have never seen another there.

870 & 871.—*Gallinago sthenura, Kuhl, and gallinaria, Lin.*

Of both species large numbers are brought in daily. Taking the season through, I believe that about as many come of one

species as of the other. But they come in very capriciously; some days there will be nothing but Pintails, another day they are all common Snipe. The Snipe seem generally well in by the 1st November, and right up to the end of April a considerable number are generally to be seen, but after the 1st of May very few indeed are seen, and in some years the majority have disappeared by the 15th April.

872.—*Gallinago gallinula, Lin.*

A *few*, almost every day during the cold season.

873.—*Rhynchea bengalensis, Lin.*

A few of these (rarely above 20 on any one day, usually about ½ a dozen) are brought in almost daily throughout the year.

874.—Macroramphus semipalmatus, *Jerd.*

This bird is still amongst our rarest. Jerdon obtained one specimen of it, the type, in the Madras market. Blyth, one in that of Calcutta on the 12th December 1847, while Mr. Oates says he got two specimens in Pegu. I know of no other instances of this bird being obtained *within our limits* (it has been met with in Dauria, Mongolia, Siberia, China and Japan) until I was lucky enough to meet with three specimens in the market on the 13th December 1878—thirty-one years and one day after Blyth got his. They were captured in an ordinary snipe net about 13 miles south-east of Calcutta.

So little is known about this species that a rather full description, with measurements, will be, I think, useful. The specimens were two females and one male. There appears in this case (unlike that of the Godwits) to be no difference in the size of the sexes.

The following are the dimensions, &c., of my three specimens :—

	Female.	*Male.*	*Female.*
Length	13·0	13·3	13·3
Expanse	22·5	23·0	23·5
Wing	6·75	6·8	7·1
Tail from vent	2·6	2·4	2·5
Tarsus	2·1	2·0	2·2
Mid toe and claw...	1·55	1·58	1·48
Hind toe and claw	0·58	0·6	0·6
Bill at front from margin of feathers ...	2·88	3·15	3·12
Bill from gape	2·89	3·1	3·07
Height of both mandibles—at base, at margin of feathers	0·45	0·45	0·47
Bare portion of tibia	1·16	1·2	1·32
Weight	3·9 ozs.	4·0 ozs.	4·1 ozs.

Wings when closed reach 0·2 beyond end of tail; first quill longest, second a trifle shorter—elongated tertials nearly equal to third quill; outer toe, to second joint, connected by a web

to half way between first and second joint of mid toe; mid toe from between first and second joint, connected by a web to first joint of inner toe; hind toe long, thin, free, considerably raised above sole; a conspicuous groove on each side of bill from forehead over nares, almost to point; point of bill much dilated, not showing reticulations or pittings in the *fresh* specimen, but with a conspicuous central groove; inner surface of upper mandible or palate, with a double row of sharp thorn-like, recurved papillæ.* Tongue long, simple, sharp-pointed and membraneous towards tip.

Bill deep brown, pinkish fleshy towards base of lower mandible; legs and feet pure dull lead colour, a little dusky at joint and in some specimens on toes; claws deep brown; irides deep brown; the lower wing-coverts are much developed, the greater ones of the hinder secondaries being almost as long as the quills themselves.

A conspicuous dark line from the eye to the nostrils; a broad not very regular dull white or brownish white band above this line, extending backwards, diminished in breadth as a supercilium; the chin, cheeks, throat and front and sides of neck white, with a brownish tinge, thickly streaked longitudinally with little brown lines, short and more or less speck-like about chin, throat and face, longer, broader, more pronounced lower down; the few last feathers, at the base of the neck on sides and at front, with traces of arrowhead, subterminal brown bars; the feathers at the extreme sides of the breast with these well marked.

The breast, abdomen, sides, flanks, vent, lower tail-coverts, tibial plumes, axillaries, and wing-lining, in *some* specimens all pure white and unmarked, in others with a few spots, traces of obsolete bars, on some of the feathers of the sides, flanks and lower tail-coverts.

The variation in the amount of barring at the base of the neck, on the extreme sides of the breast and elsewhere, is probably seasonal.

The lesser lower coverts everywhere just inside the edge of the wing, brown centred.

The forehead between the dull white bands, the crown and occiput, moderately dark, slightly sooty, brown, with just a trace of paler margins to the feathers.

The nape, back of neck and interscapulary region similar, but the brown somewhat lighter, and the pale brown margins to the feathers more conspicuous; the scapulars similar, but most of them rather darker; the lesser wing-coverts generally

* This also characterizes *Totanus haughtoni*.

decidedly darker, with the pale margins obsolete or nearly so, while in the median coverts these are more conspicuous and white or nearly so; the winglet and primary greater coverts very dark brown; the coverts, more especially the hinder ones, tipped white; the rest of the greater coverts a lighter brown, often greyer, tipped, margined, and more or less imperfectly barred towards the tips with pure white, most conspicuously so on the inner webs; the earliest primaries deep brown, growing less deep as they recede towards the secondaries, which are a rather light, in some birds decidedly grey, brown; all the quills with much white and white mottling on the inner webs, the amount of which increases as the feathers recede from the outside of the wing; all but the first five or six primaries more or less conspicuously margined, often in a mottled fashion, on the outer web, and at the tips also, with white; the secondaries more strongly so, and these and the later primaries, with more or less of a mottled white shaft streak.

The rump and upper tail-coverts white, conspicuously barred with black, the terminal bar more or less following the curve of the feather; the tail feathers white, with regular, rather broad, transverse blackish brown and black bars; the central feathers always, the next one or two pairs often, and sometimes nearly the whole tail, with an ashy brown shade over the whole terminal portions of the feather alike over white and black, both of which it obscures and dulls.

As already mentioned this species has been met with in Northern Asia, and China and Japan; in the two latter during the cold season; in the former during the summer. Those obtained in the summer in breeding plumage had the whole heads, necks and breasts rufous, and were tinged with this colour above; in fact were in a dress that bore much the same relation to their winter plumage that the summer plumages of *Tringa subarquata* or *Limosa ægocephala* does to *their* winter garbs.

Although this species has been met with elsewhere, as already noticed, it appears to be quite as rare in those countries as in India, and I am inclined to suspect that it is an old and vanishing species.

875.—*Limosa ægocephala, Lin.*

A good many are brought into the market, especially about the commencement and close of the cold season. During the coldest portion, 15th December to 15th February, you do not see half a dozen.

876.—*Terekia cinerea, Güld.*

Once only have I seen this species in the market, and then an entire flock, fully fifty, had been netted.

877.—*Numenius lineatus, Cuv.*

This is another species plentiful at the end, pretty common at the beginning, but rare during the middle of the cold weather. During March and the early part of April considerable numbers are usually brought in.

878.—*Numenius phæopus, Lin.*

Rare; two or three at most during the whole season. Some years none.

880.—*Machetes pugnax, Lin.*

Rather common, a few daily; large numbers at the commencement and close of the season.

882—885.—*Tringa subarquata, alpina, minuta, ruficollis (damacensis) and temmincki.*

All these are pretty common—*minuta* and *ruficollis* come in about equal numbers. *Subarquata* is here *much* more common than *alpina*, whereas up-country, except at the season of migration, it is almost exclusively *alpina* that occurs.

886.—*Limicola platyrhyncha, Tem.*

Rare. I have only met with this species perhaps six times in as many seasons during which I have attended the market.

887.—*Eurynorhynchus pygmæus, Lin.*

Once only have I known of this species occurring.

889.—Phalaropus fulicarius, *Lin.*

Blyth obtained one specimen in *winter* dress on the 11th May 1846 in this market. I know of no other instance of its occurrence within our limits.

I wish to remark here that I formerly certainly made a mistake about this species. Happening to obtain a single specimen in the open sea between Gwader and Muscat, and seeing numbers apparently identical, and being told that they were always seen in numbers in those parts, I said, S. F., I, 245:—

"It is, however, as I ascertained, a regular and well-known visitor to the seas that wash the Sindh and Mekran Coasts, and I myself again observed it in the open sea between Kurrachee and Bombay."

Subsequent experience leads me now to believe that all or most of the flocks I saw, and the birds that my informants referred to, were *Lobipes hyperboreus* and *not* the present species. At least twenty specimens have been shot and sent to me by different persons from these localities; all have, without exception, belonged to *hyperboreus*, and no other specimen of *fulicarius* has been obtained.

The question remains: Can I have made a mistake about that one specimen? I recorded its dimensions and description on board the "Amberwitch," and after that it was in some way mislaid, and no specimen of *fulicarius* is forthcoming. It is not likely that I should have made such a mistake, since my remarks on page 247 show clearly that I thoroughly understood even then the marked structural difference between the two forms. Still the specimen is not forthcoming, and every other specimen since obtained has been *hyperboreus*, so that, even if I *was* correct in my identification, *fulicarius* can only be a rare straggler to those parts, it being *Lobipes hyperboreus*, and *not Phalaropus fulicarius*, that is the regular and well-known visitant to the upper part of the Indian Ocean, and the Gulfs of Oman and Persia.

891.—*Rhyacophila glareola, Lin.*

This species is one of the *pièces de résistance* of the market. I find, on the 20th of October, a note "already piles of the Spotted Sand Piper," and again on 26th April "still numbers of *glareola*." *Certainly* not *less* than 10,000 of this bird, and I estimate nearer 15,000, are sold in this market every season. It is quite a common thing to see upwards of 200, (though you may in bad dark weather see only a score or two), and more than once that I have had assistance in counting we have counted over 500. Where do they all come from year after year? No doubt the supply is somewhat diminishing; this I can plainly notice, and the exertions necessary to secure what is brought in have, the people tell me, been multiplied many fold. Still, considering the limited area worked, as also the fact that it is densely populated, and presents no special attractions, quite the contrary, to wild birds, the immense numbers of this and other species brought in are astounding.

892—897.—*Totanus ochrophus, glottis, stagnatilis, fuscus, calidris* and *Tringoides hypoleucus.*

All occur pretty commonly; *calidris*, however, is by far the most common; scarcely a morning that from 5 to 50 are not seen. Next, but less common, is *glottis;* less common still is *stagnatilis.* As for *fuscus* and *hypoleucus*, though you could not call them rare, still you would probably not see them on the average above once in ten days. Strange this, considering how much more common elsewhere *hypoleucus* is than all the rest.

894 *bis.*—Pseudototanus haughtoni, *Armstr.*

Once, and once only, have I met with this species in the Calcutta Bazaar.

I am quite convinced, now that this must be generically separated from *Totanus*, and the shape of the bill is so different that it cannot be placed in *Pseudoscolopax*. I, therefore, propose the above generic name for it. I have already, S. F., IV, 347, fully characterized the genus, and I have only to add to the characters there given, "Palate with a double row of recurved horny papillæ."

898.—*Himantopus candidus, Bon.*

Brought in occasionally, perhaps once a week on the average.

899.—*Recurvirostra avocetta, Lin.*

Very rarely brought into the market, perhaps on an average three or four times in the season, and this generally about March.

900.—*Parra indica, Lath.*

A few come in weekly.

901.—*Hydrophasianus chirurgus, Scop.*

Great numbers of these are brought in. Excluding the four species already indicated as occurring in the greatest numbers, the present furnishes the next largest contingent, from 20 to 100 daily, all through the cold weather, and a smaller number during the rest of the year. The bird is common no doubt, but one never sees it in very large flocks, and it is surprising how they manage to go on capturing, day after day and year after year, such large numbers of this species.

902.—*Porphyrio poliocephalus, Lath.*
903.—*Fulica atra, Lin.*
905.—*Gallinula chloropus, Lin.*
907.—*Erythra phœnicura, Pen.*
} Are all brought in from time to time, and can neither be said to be rare or common.

904.—*Gallicrex cinereus, Gm.*
908.—*Porzana akool, Sykes.*
909.—*Porzana maruetta, Leach.*
910.—*Porzana bailloni, Vieill.*
911.—*Porzana fusca, Lin.*
913.—*Hypotœnidia striata, Lin.*
914.—*Rallus indicus, Bly.*
} All rare, but each and all are to be seen from six to a dozen times during most seasons. Of these, *akool* is the rarest, *fusca* the most common.

I have seen both species of Adjutant, the Jabiru, and both the White and White-necked Stork (*Dissura episcopa*), now and again in the market; not once every season even, but now and again. The Adjutants were alive; in all cases birds that had injured themselves, and were caught and sold to natives who wished to keep them in their gardens. The others also generally alive, and purchased for aviaries and menageries, but occasionally dead and then sold for food!

921.—Ardea goliat, *Tem.*

Several specimens of this species were obtained in the Calcutta Bazaar in 1845-46 by Blyth. But from that day to this no further trace of the species has ever, to the best of my belief, been obtained* in Calcutta or anywhere else in the Empire.

It is one of the *very* few species unrepresented in our museum by Indian-killed specimens.

There is a mystery about Blyth's specimens. I have shown them to every fowler employed in supplying the market, but no one admits ever having seen the like, and several of these fowlers have been 40 years at the trade. I have offered a, to them, enormous reward for a specimen, but as yet without success.

I cannot understand how, in 1845-46, they were so plentiful and thenceforth utterly disappeared. They must be local in their distribution, and probably come only to some one locality worked in 1845-46 by some men who died thereafter, and not now known to or worked by other Shikarees. I have been at work for years to get specimens of the species and learn something about their distribution, habits, &c., but I can get nothing and learn nothing, and no person, I believe, has ever certainly *seen*, let alone *shot* any (since Blyth bought these birds in the bazaar) anywhere in the whole Empire.

923.—*Ardea cinerea, Lin.*
924.—*Ardea purpurea, Lin.*
925.—*Herodias torra, Buch. Ham.*
926.—*Herodias intermedia, Hasselt.*
927.—*Herodias (?) garzetta, Lin.*
929.—*Bubulcus coromandus, Bodd.*
930.—*Ardeola grayi, Sykes.*

All these are brought in, now and again, in ones and twos. Sometimes for months not a Heron is brought, and then again for a while one or two come in every day or nearly so.

931.—*Butorides javanica, Horsf.*
932.—*Ardetta flavicollis, Lath.*
933.—*Ardetta cinnamomea, Gm.*
935.—*Ardetta sinensis, Gm.*
936.—*Botaurus stellaris, Lin.*

Except *cinnamomea*, which breeds freely all about Calcutta, and which is brought in twenty times at least every season, all the rest are rare; the Bittern, I have only seen twice, and the Black and Yellow Bitterns are not seen above once or twice in a season.

* See however S. F., I., 105.

937.—*Nycticorax griseus, Lin.*
938.—*Tantalus leucocephalus, Forst.*
939.—*Platalea leucorodia, Lin.*
940.—*Anastomus oscitans, Bodd.*
941.—*Ibis melanocephala, Lath.*
943.—*Falcinellus igneus, S. G. Gm.*
944.—*Phoenicopterus antiquorum, Tem.*

Each and all of these I have seen occasionally. They may be seen twice or three times one year, not at all the next. I don't think I have seen any one of them more than a dozen times in half as many years.

945.—*Anser cinereus, Meyer.*

949.—*Anser indicus, Lath.*

These are the only Geese that I have ever seen in the market. They are about equally common.

On the average, I should say, that not more than one of each is brought in per week. Sometimes a whole month passes without one being seen, and then several are brought, but I should guess that from 60 to 70 of each come in during the cold season.

950.—*Sarcidiornis melanonotus, Penn.*

This is perhaps rarer than the two preceding. I should say that about 20 to 30 altogether come in during the cold season ; but during the rains more are said to be captured.

951.—*Nettopus coromandelianus, Gm.*

Right through the year, summer and winter, this little Goose or Cotton Teal abounds in the market. In number, even in January, it exceeds that of all the other Ducks put together. Two or three hundred is not at all an uncommon number to come in, in one morning. I have known over 500 to be brought. Where all these birds come from is, in this case also, a perfect mystery to *me*. The limits within which the people assure me that all their birds are captured (*very* few are shot) *cannot*, it seems to me, supply the requisite number of a resident species like this. In the case of migratory species, it matters less ; you may clear off one area this year, but next year a new set of migrants will restock it ; but in the case of a non-migratory species, I cannot understand how persecution like this (fully 20,000 must be caught during the year) does not exterminate it.

Of this, however, I see no signs. It is ten years since I first began to watch this market ; I notice a manifest falling off in the numbers of the migratory Ducks, none in those of the Cotton Teal.

952.—*Dendrocygna javanica, Horsf.*

This Duck stands high in the list as regards commoness; but though as many as 40 or even 50 *may* be seen in the market some mornings, I doubt whether more than 1,000 come in during the whole year.

953.—*Dendrocygna fulva, Gm.*

Although this is not rare, I do not suppose that much above 100 come in during the whole year.

954.—*Casarca rutila, Pall.*

Rare—perhaps forty are brought in during the season; some years more, some less.

956.—*Tadorna cornuta, S. G. Gm.*

Very rare. I have only seen this species three or four times in the market, and only in March and April.

957.—*Spatula clypeata, Lin.*

Pretty common; in fact during the cold season, one or more (sometimes a dozen) are generally to be seen each morning. They are barely edible according to my ideas.

958.—*Anas boschas, Lin.*

Very rare. Blyth was not aware of its occurrence, but I have twice procured *ducks*, no drake as yet.

959.—*Anas pœcilorhyncha, Gm.*

A pair or so come in occasionally. Sometimes a dozen may be seen, but they are not common, and I dare say an estimate of 200 for the season would be rather above than below the facts.

960.—Anas caryophyllacea, *Lath.*

So far as my experience of many years goes, this is an extremely rare Duck in the Calcutta market. Mr. Wood-Mason and others (none of whom, however, I believe, ever visit the market themselves) have assured me that it is common there. I can only say that during six seasons I have seen only five of these Ducks, and all of them with their throats cut and otherwise so mangled as to be useless.

There is something odd about this Duck. It must be common somewhere, but *where*, I have failed to discover.

Blyth says "India generally; not migratory; Burma; *not* very common in lower Bengal." Jerdon says, "Most common in parts of Bengal, but is found at times throughout Northern India; is rare in the North-West Provinces, and still more so in Central and Southern India."

Now except in Goruckpoor and Bustee, it occurs nowhere to the best of my belief in Northern India, *i.e.*, in the North-West Provinces, Central Provinces, Punjaub, Rajpootana, Sindh, Central India or Bombay. In Oudh, as in Goruckpoor and Bustee, it appears, but apparently only as a rather uncommon migrant. In the southern part of the Purneah district it appears at one season of the year in small numbers. No one that I can meet with knows where it is *common* or has taken its eggs. I have enquired about the Howrah, Jessore, Dacca, Furreedpoor, Sylhet districts. The same story everywhere, "nowhere common," "very scarce here," &c.

Can any one help me to the home of this species? It appears to be unknown in Tenasserim and scarce in Upper Burma, and either absolutely wanting or uncommon in every part of India. It does not extend to China or, so far as I know, Central Asia or Siberia. It is migratory in an eminent degree, but its migrations are confined apparently within the limits of the Empire, and I may say the eastern half of the Empire. I have it from the Pulicat lake and from near Lucknow, but I don't think it goes much west of the 80° E. Long.

961.—*Chaulelasmus streperus, Lin.*

962.—*Dafila acuta, Lin.*

967.—*Fuligula rufina, Pall.*

969.—*Fuligula nyroca, Güld.*

These are the commonest Ducks in the market, and though a less number of each of them *may* come in taking the *whole year round* than of *Dendrocygna javanica*, they all outnumber this during the cold season. It must have been a bad night, indeed, in which half a dozen of each have not been brought to bag, and when the moon is about full, ten times this number of each may be seen in the morning market. Probably about twice as many *nyroca* come in as of *streperus*, and three times as many as of *rufina* or *acuta*.

961 *bis.*—Chaulelasmus angustirostris, *Ménétr.*

On the 19th December, what should I hit upon in a batch of Teal, just coming in from a swamp some 22 miles south-west of Calcutta, but a fine male of QUERQUEDULA ANGUSTIROSTRIS, the Marbled Duck!

This upsets one's ideas altogether about distribution. Up to 1872 it was not known to occur eastwards of Egypt and the Mediterranean littoral. In that year I discovered it in Sindh and announced its occurrence there. Later in 1863 I heard of its being found in Northern Guzerat.

In 1875 (S. F., III., 273) the late Mr. Anderson announced its occurrence in Futtehgurh (North-West Provinces) and in Hurdui, in Oudh, and now here we have it actually close to Calcutta.

963.—*Mareca penelope, Lin.*

A specimen or two occasionally—perhaps fifty during the season—never more; at times, I dare say, less.

964.—*Querquedula crecca, Lin.*

Comparatively scarce—some mornings a few may be seen, but probably not above *one* to *ten* of

965.—*Querquedula circia, Lin.*

The Blue-winged Teal, which is always pretty plentiful, from early in October to late in April, though most numerous from December to March.

966.—Querquedula formosa, *Georgi.*

It was in this Calcutta Bazaar that Blyth, in 1844, obtained the only specimen of *Q. formosa*, Georgi, ever yet, so far as I know, *preserved* within our limits. I say *preserved*, because several correspondents profess to have heard, seen and shot them, but, as I always tell them, I will accept this *when* they send me a specimen and not before. Strickland, I think, used to say, "What's hit is history; what's missed is mystery," but I go further, and only acknowledge in the case of most Indian sportsman, as *history*, species of which specimens have been *preserved*.

The only decently-authenticated record of the occurrence of this species in India, since 1844, is one by Mr. E. James, now Post Master General, Bombay, who had a water-colour painting of the head of a Teal shot in Sindh, which certainly was male *Q. formosa*. I wish sportsmen all over the country would keep a sharp look out for this species.

966 *bis.*—Querquedula falcata, *Georgi.*

I have already (Vol. IV., 225) reported the occurrence of this species near Kurnal (Punjaub), and near Lucknow (Oudh), and now I have to record obtaining a lovely specimen on the 2nd January in the Calcutta Bazaar.

This species has not yet been described in Jerdon or STRAY FEATHERS.

The following are the dimensions, &c., of my specimen :—

Male.—Length, 19·75; expanse, 32·5; wing, 9·5; tail from vent, 3·2; tarsus, 1·5; bill from gape, 2·1; weight, 1 lb. 6 ozs.

Irides deep brown; bill perfectly black (not a bit *greenish*) as Dresser says; legs and feet drab, with an olive tinge, (not the faintest approach to blue grey as Dresser calls them); the webs, except immediately alongside the toes, (where they are unicolorous with these) and claws dusky black.

A frontal spot ending in a point on the culmen, about 0·4 long and 0·3 wide, pure white.

The lores, forehead, crown and lower portion of cheeks a rich ruddy purple or chocolate bronze; the rest of the cheeks, sides of the head, and occiput emerald green in most lights, in a few ruddy, or even rosy bronze; the feathers of the hinder crown, occiput and nape are lengthened so as to form a considerable mane-like crest; the chin and entire throat snow white, then a black ring all round the neck, with dark green or greenish blue reflections; the white of the throat runs in a little point into this ring and half divides it; then a white ring; then the front and sides of the neck, breast and abdomen (except quite the lower part) white, each feather with a broad subterminal black bar following the curve of the end of the feather; those of the neck with these bars very perfect and strongly marked, and with similar though not quite so well-marked bars within the outer one, higher up; those of the breast and upper three-fourths of the abdomen, with only the single bar, and this more or less imperfect; back of the neck (below the white ring), interscapulary region, smaller scapulars, sides of breast, sides, flanks, lower portion of abdomen and feathers about vent, closely barred, in some places almost vermiculated, black, or dusky, and white or greyish white, in varying degrees of fineness and intensity; entire wings and larger scapulars dove or grey brown, darker on the quills; the outer webs of all the secondaries black, with dull metallic green lustre, their greater coverts broadly tipped white, they themselves narrowly so.

Middle and lower back and rump dark rather glossy hair brown; a few of the feathers with traces of fine pale vermiculations; shorter central upper tail-coverts similar, but a paler greyer brown; rest of upper tail-coverts jet black, with a subdued green lustre; tail a delicate, somewhat silvery, grey brown, almost *completely* covered by the long black upper tail-coverts; entire wing-lining and axillaries pure white; the lowest flank feathers on each side, with broad, pure-white, *unbarred* tips, most of lower tail-coverts black, with a faint greenish lustre; shorter lateral lower tail-coverts on either side pure creamy buff.

This patch of creamy white is not as Dresser seems to think, and as he figures it, *on each side of the tail*; on the contrary

it is entirely under the tail, in fact an integral part of the lower coverts.

In the breeding season the tertiaries are said to be "greatly elongated, sickle-shaped, and reaching to the end of the primaries; the shafts and external edges of these feathers whitish, the outer ones being entirely velvety black, but the inner ones less black, and finely vermiculated." There is no trace of this development in our bird; in it the tertiaries are pale grey brown.

Dresser neither figures nor mentions the conspicuous snow-white frontal patch.

In other respects his description agrees fairly with our bird, so that I may safely quote his description of the female and young male, neither of which have as yet been obtained here.

"*Adult Female.*—Head striped with purplish brown, each feather margined with fulvous; sides of the face and neck dotted with small brown points and stripes; throat paler, varied with small brown markings; general colour of the back rufous, more or less broadly and irregularly varied with brown; lower portion of the back brown, with a few obsolete fulvous edgings, being coloured as in the male, but the sickle-shaped feathers not developed, these being represented by a few elongated and slightly curved feathers, for the most part brown, the outer webs inclining to grey at the base, the outer margins white; upper part of the breast deep rufous, with a few purplish-brown cross markings, these being thickest on the lower part of the neck and sides of the throat; rest of the under surface of the body fulvous, covered everywhere with very indistinct brown mottlings; sides of the body and under tail-coverts rather deeper rufous, with plainer longitudinal brown stripes and irregular mottlings; under wing-coverts and axillary plumes pure white. Total length, 16 inches; culmen, 1·8; wing, 9·0; tail, 3·4; tarsus, 1·2.

"*Young Male.*—In general colouration resembling the old female, but altogether of a darker brown, and less mottled with rufous, the head and back being distinctly glossed with green; the wing coloured as in the adult female, but having obsolete fulvous edgings to the wing-coverts, and the white tips to the greater coverts also somewhat tinged with fulvous; the under surface of the body is pale fulvous, covered with small spots of brown; the upper part of the breast and flanks more rufous, and mottled with brown. Total length, 15 inches; culmen, 1·65; wing, 9·3; tail, 3·0; tarsus, 1·25."

968.—*Fuligula ferina, Lin.;* and 971.—*F. cristata, Lin.*, both occur, but the latter especially rather rarely, in the market. I don't think that in all these years I have seen more than 20 to 30 of each in any season.

974 and 975.—*Podiceps cristatus, Lin.*, and *P. minor, Gm.*—Both occur, the latter commonly, the former perhaps six or eight times in the season—both are freely bought, sold and eaten as "*Ducks*"!

Of the Gulls and Terns little need be said, except that but few come in, but that what do come find a ready sale as "*Pillowa*"? Do you give it up? *anglice*, (though *they* fancy they are talking *first* quality English) Plover!

The only species I have seen are *Larus ichthyætus, ridibundus* and *brunneicephalus, Sterna anglica, indica, seena* and *melanogastra*, and *Rhynchops albicollis*.

Pelican used, I hear, to be brought into the market, but I have seen none for several years.

The *Bilak Dook* (Black Duck) alias *Phalacrocorax pygmæus*, is manifestly a favourite dish with the European nobility and gentry of Calcutta, but the natives never buy them *except for their masters!*

I may add a few words about prices, which have enormously increased during recent years.

It is not so long ago that the finest Duck, say a male Pintail or red-crested Pochard, in first-class condition, could be bought as a rule for 4 annas, and I have bought them when the market was rather overstocked for 3 annas a piece.

This year large first-class Ducks have *never* been below 8 annas, have generally been up to 10 annas, and on some mornings, during dark periods of the moon, have sold at 11 to 12 annas.

Brahminys, *i.e.*, Ruddy Shelldrake, which are wretched eating, and which used to sell for from 8 to 10 annas, have this year sold for from Re. 1 to 1-12 each! It seems perfectly astonishing that people should pay such prices for such wretched birds. As for Geese, the old price of which was 12 annas, they have never been down to Re. 1, but as far as I could see, they never ranged as high as the Shelldrake, although larger and infinitely better eating. There is no accounting for these things.

Snipe, a few years ago, were always at least 8 for the rupee; often I have known them go at ten or even twelve. This year they have only once been down to six, and with this exception they have varied from four to five according to the supply in the market. The regular price for the spotted Sand Piper used to be 8 annas a score. They have fetched 2 annas a piece on more than one occasion this year.

Tringa minuta used to be 4 for one anna; you can hardly get 3 for 2 annas now. Compared with European rates the prices are still moderate, but the rise has been very great and rapid, and if this kind of thing goes on, water-fowl will, in a few years, become a luxury too expensive for people generally to indulge in.

The vendors of Quail, Pigeons and the miscellaneous Lark-Wagtail-Pipit lot, always dignified by the appellation of ortolans, are the people who have captured or aided in capturing them. In the case of the shore and water birds it is different; the sellers are, as a rule, mere stall-keepers. The real fowlers come in often before it is light, each bringing from fifty to a couple of hundreds of snipe, snippets, plovers and ducks, dead and alive, tied densely along a stick, 4 to 6 feet long, with an empty space just big enough for the shoulder in the middle, and the first act of the market consists of the haggling between the fowlers and the stall-keepers. Some of them seem to have standing arrangements with, or to be partners in, the stalls, and just make over their birds to one or more of the vendors without discussion, but in the majority of cases, vehement bargaining goes on. One dealer seizes one end of the stick, another the other. The fowler holds on vigorously. Each successively gives a little pull in his own direction. All scream, gesticulate and use indifferent language at the tops of their voices. A stranger would certainly expect a pitched battle, but after a time everything is arranged. Sometimes the parties cannot at first agree, and the fowler will sit down and begin to sell on his own account, or make a show of doing so, but this never lasts long.

On the whole, the fowlers seem to me to get very fair prices. I took a long time to find out what they do get, but succeeded at last. I found that, if the dealer could sell 6 snipe for the rupee he took 8 from the fowler—if he could sell a duck for 10 annas he paid 7, but they sometimes make much larger profits, and especially in the case of fancy articles, such as Geese and Ruddy Shelldrake. I observe that the fowlers often sit down beside the stall-keepers and watch the sales for some little time. I suppose to keep themselves *au fait* of current prices and ruling rates.

A certain amount of dead Geese and Ducks that have been shot, and *gutted*, have also been in recent times brought down (but not, as far as I can learn, from any great distances) by the E. I. R., E. B. R., and Port Canning lines, but as yet these receipts form a very insignificant portion of the supplies. Possibly, as the local production diminishes and prices rise, the unlimited sources tapped by these lines may furnish a larger contingent, and when they do so, it may be worth the while of the railways to provide special carriages in which such birds can be hung, designed on an ice-box principle to keep out heat and enclosing a huge lump of ice to keep down the temperature inside.

A. O. H.

Ocyceros tickelli.

My friend Mr. Elliot was anxious to obtain good specimens of *Ocyceros* (*Anorhinus*) *tickelli* to figure for his splendid work on the Hornbills, so I specially deputed my Assistant Curator, Mr. Darling, to the only place where I know that they occur, and after much trouble he succeeded in securing a series.

We are now in a position to speak with greater certainty about *Anorhinus austeni*. Referring to what I said (p. 167), it will be remembered that I concluded that this was too large to be identified with *tickelli*.

The following dimensions recorded in the flesh by Mr. Darling hardly support that conclusion :—

Sex.	Length.	Expanse.	Wing.	Tail.	Tarsus.	Bill from gape.	Weight.
♂	29·9	37·7	13·5	12·5	1·9	5	1·875lbs.
♂	30·4	39·2	13	12·4	1·91	5·2	2 „
♂	29·8	42·2	13	12·6	1·8	4·9	1·875 „
♂	30	42	12·5	12·9	1·9	4·8	1·875 „
♀	28·3	39	12	11·8	1·9	4·8	1·625 „
♀	28·1	38	12	11·5	1·8	4·5	1·75 „
♀	28	...	12	11	1·9	4·5	1·625 „
♀	28	39	12·2	11·4	2	4·5	1·5 „
♀	28·5	38·5	12	11·5	2	4·4	1·5 „
♀	28·6	39	12·3	11	2	4·4	1·5 „

So far, therefore, as size is concerned, the two might not impossibly be the same bird, but with fifteen specimens, seven males and eight females, before me, I am able to say positively that, *if* Major Godwin-Austen's description was accurate—and I have myself no doubt that it was so—then *A. austeni* is distinct from *A. tickelli*.

As I said before (p. 168) *austeni* must have been a male: all my male *tickelli*, young and old, have the bill pale yellow; all the females have it blackish brown to brownish dusky.

In no specimen, male (or female) of *tickelli*, are the "*throat and sides of the neck white*" as in *austeni*, nor does any single specimen exhibit any trace of, or tendency towards, such a coloration.

In no specimen of either sex of *tickelli* are the "*bases of the primaries white*," or the primaries themselves "*barred with white*," both of which are said to be the case with *A. austeni*.

Of course, if Godwin-Austen, for once in his life in regard to this one particular bird, has written a wrong description, *austeni* and *tickelli may* be identical, but this being highly improbable, I at present feel no doubt that the two are distinct.

Darling records that in the *adult male* the bill is yellowish white, a little browner on the casque, with a patch of saffron or orange yellow at the base of the lower mandible on either side, and with generally a small dusky patch at the tip of the lower mandible, at times running as a narrow band backwards along the commissure. In the female, the bill is brownish black; sometimes a sort of chocolate dusky.

In both sexes the irides are bright brown; but in one female they were black; the legs and feet brownish black; the claws horny black; the orbital skin and that at base of lower mandible bluish white or blue, the latter not unfrequently pink, and sometimes part of the former also is the same colour.

The colours of the soft parts, as recorded by Davison and Bingham (VI., 104) should also be referred to, as no two persons quite agree about colours.

Besides the differences in the colours of the bills, and in size, already pointed out, the males and females differ further, in that the former have the chin, throat, sides of neck, entire lower surface of body, tibial plumes and lower tail-coverts, a bright, warm, somewhat ferruginous rufous, while in the female these parts are a grey earthy brown, only partially tinged or overlaid with a dull ferruginous rufous.

In the male, the white tippings to the tail-feathers are much deeper than in the female, and in the former some or all of the primary greater coverts are tipped with white, which is not the case in the female; the white tippings to the quills, which often in the male extend to the tertiaries, are much less marked in the female, and are commonly confined to the earlier primaries.

Darling says :—

"This bird, of which I got twelve*—six males and six females —I met with on the Thoungyah Hills, some 15 miles from Kaukaryit, on the way to the Yahine Territory, *viâ* Meawuddee.

"I noticed them once half way between Kaukaryit and Thoungyah. I found them very shy, and very hard to get close to; they were always in heavy forest, and the way they found out a man's approach, although stalked in a perfect native fashion, was something marvellous. They announce their whereabouts by an incessant cackling, which they always seem to keep up when feeding, but when any danger is seen, a shrill scream is given, and away they go, one after the other in a string; they do not seem to fly far, but settle

* He only recorded the measurements of ten.

in a tree from 100 to 150 yards off, and again commence their cackling.

"When feeding, they are found as low as from 30 to 40 feet from the ground, but when disturbed, they fly straight off to the tops of the highest trees about. They never, when feeding, sit for more than, at the most, a minute in one place, but are constantly bustling, flying, and sailing about. The parties I saw consisted of from eight to eighteen birds, though generally from eight to ten. The chief food seems to be berries, but I twice found remains of some kind of fly in their stomachs."

A. O. H.

Influence of Rainfall on Distribution of Species.

On a recent occasion (*vide* ante, p. 53), I pointed out how great an influence the total annual average rainfall had on the distribution of birds.

I said:—"It is customary to talk of the Malayan *facies*, of the Fauna of the Malabar Coast, the Assamboo Hills and part of Ceylon; what is this but that in these localities you recover the heavy rainfall of the Malay Peninsular? How the same species or representative forms found their way to these distant localities is another question, but their survival in each is due primarily to the extent of the rainfall.

"What gives such a plains of India *facies* to the dry upper portions of Pegu, but the light average rainfall? What allows the Indo-Malayan species to run up westward along the feet of the Himalayas, at any rate as far as the Ganges, but the heavy rainfall?"

When this was written no chart had been published so far as I know illustrating these views.

Later, however, a small map of India, approximately showing the mean annual rainfall of the various provinces, was prepared for other purposes, and I am able to present my readers with a copy of this.

A glance at this affords one important key to the entire distribution of species in India.

We see at once why the West Coast, Tenasserim, Lower Pegu, Arakan, Eastern Bengal, Assam, and the Sub-Himalayan tracts, have such very similar avifaunas; why the birds of the Dekhan and parts of the North-West Provinces and the Punjaub, Rajpootana and Kattiawar are almost identical; why so

many species are practically confined to parts of Rajpootana and the Punjaub, Sindh and Cutch.

This little map is not nearly sufficiently in detail to admit of the subject being worked out as it should be. Our materials are not yet nearly sufficiently full and accurate to permit of the *accurate* delineation of Iso-ombric zones; all that has here been attempted is to convey a general conception; we should require seven or eight instead of four such zones in order to make the correspondence thoroughly clear; but still this little map will, I think, suffice to prove the general correctness of the view which I put forward; and so far as I know for the first time, *viz.*, that *in this Empire, the average rainfall is the most potential factor in determining the distribution of species where birds are concerned.*

How far this tentative axiom will be found applicable to other tropical and sub-tropical countries, or how far again what is true of birds may prove true of mammals, reptiles and other sections of the animal kingdom, I cannot pretend to say; but the subject is of sufficient importance to demand the consideration of all those interested in the laws that govern the distribution of animal life.

In conclusion, it may be well to notice that Mandalay and all Upper Burmah are left blank, not because we believe them to belong to the arid zone, but because no materials exist for coloring these correctly.

A. O. H.

Some Notes on Sindh Birds.

By S. Doig, C.E.

I have recently come across one or two species not hitherto enumerated in any of the former lists* of Sindh Birds, and I may as well put these on record at once.

I have also one or two remarks to make in regard to species which are *not* new to the Sindh list.

* *Vide* I., 148; V., 328; VII., 113 and 173.

SECTION 1.

Birds new to the Sindh List.*

38.—Circaetus gallicus, *Gmel.*

Shot a specimen of this Eagle on 10th November 1878, near Mahomed Khan's Tanda. Dimensions as follow :—

Female.—Length, 27·5 ; expanse, 72 ; tail, 12·5 ; wing, 21·5 ; bill at front, 1·5 ; bill from gape, 2·5.

Noticed it pretty often all along the road from the above place to the Eastern Narra Districts, where it is tolerably common.

52.—Circus cineraceus, *Mont.*

Shot a young female on 17th November, and a young male on 18th ; the former was shot so badly I could not skin it.

Comparing the skin of the male with the diagnosis given in the 1st Vol. S.F., page 418, there is no doubt about the identification of this bird as the quills are only emarginated on outer webs of the 2nd, 3rd, and 4th primaries, and the bulge on the 2nd primary is fully an inch below the line of wing-coverts.

67.—Otus vulgaris, *Flem.*

Shot a very fine female on the 23rd of December 1878.

Length, 14·32 ; expanse, 37·5 ; tail, 6·5 ; wing, 12 ; bill at front, 1·12 ; bill from gape, 1·25.

Irides bright yellow ; claws dark horny ; bill the same.

[Here I should insert a letter previously received from Captain Butler from Hyderabad. He says :—

"Great luck, this morning, (19th December 1878) I bagged a beautiful pair (*male* and *female*) of *Otus vulgaris*. I was sitting on a bridge crossing a nullah, overgrown with thick babool trees, in the early morning waiting for Doig, when suddenly I heard about fifty Babblers chattering away in such an unusual manner that I knew at once they were mobbing something, and on proceeding to the spot I found a lovely pair of *Otus vulgaris* sitting in the middle of a low babool tree on the outside of the clump. Two shots quickly secured them both, and beauties they are.

Measurements as follows :—

Female.—Length, 13·75 ; wing, 11·25 ; tail, 5·75 ; bill at front, 1·06 ; bill from gape, 1·12 ; expanse, 35·75.

* I have taken this opportunity to record four other species new to our lists. This makes eight in all, and raises the total number for the province to 379, of which only nine—Nos. 26, 168*bis*, 259*bis*, 490*ter*, 497*ter*, 720*quat*, 751*ter*, 845*bis*, 985*bis*—seem doubtful.—ED. S. F.

Male.—Length, 14; wing, 12; tail, 6; bill at front, 1·06; bill from gape, 1·12; expanse, 35·73.

Toes lavender; bill dusky horn; irides brilliant orange yellow."—Ed. S. F.]

[553.—Hypolais rama, *Sykes.*

553 *ter.*—Hypolais pallida, *Hemp. and Ehr.* (*ante p.* 398.)

Both these were sent me long ago from near Sehwan by Mr. James, but I was not satisfied as to the identity of the latter, and I sent it to Mr. Brooks, who said it was only a large *rama*, in which I did not concur, and so the specimens lay by unnoticed until I got specimens of *pallida* identified at home from Persia and Europe, and then I forgot that *neither* species had been noticed.—Ed., S. F.]

[738.—Carpodacus erythrinus, *Pall.*

Amongst specimens of *Erythrospiza githaginea*, Mr. Murray has recently sent me two examples of this present species, killed near Sehwan in December 1877.—Ed. S. F.]

932.—Ardetta flavicollis, *Lath.*

On the 25th January I noticed what I thought was a remarkably *dark* green Bittern, and again on the 26th I had a nearer view of the same bird, and I then distinctly saw a yellow streak along the side of the neck and the throat of a whitish colour; the rest of the plumage apparently black; when too late to shoot it, it flashed across my mind it was a Black Bittern.

[Captain Butler writes:—

"I discovered another novelty on the 29th January in a swamp about eight miles from here (Sukker) on the other side of the river, *viz.*, the Little Black Bittern. I have no books by me, and cannot recollect the scientific name now. There was no mistaking the bird, as it crossed the canoe I was in, with the sun shining full on it so close (about 6 or 7 yards) that I did not shoot for fear of blowing it to pieces.

It dived into a thick bush, whence I was unable to dislodge it. As far as I could see, it was about the size of *A. sinensis* or *A. cinnamomea* of a glossy (!) black throughout, with a pale yellowish line on the side of the neck."

It would have been much more satisfactory if one of these gentlemen had shot the bird. Neither of them are familiar with it, and there is always a possibility of error in this kind of identification.—Ed., S. F.]

[971 *bis.*—**Clangula glaucion,** *Lin.*

This species must, as already noted, VII, 464, be added to the Sindh list.—Ed. S. F.]

Section 2.

Birds not new to the Sindh List.

8.—Falco peregrinus, *Gmel.*

Shot a very fine female at Dadoo, a place north of Sehwan, on the 26th December 1878; it was sitting in a babool tree in the middle of a dhund.

Length, 18·62; expanse, 44·75; tail, 8·12; wing, 14·3; bill at front, 1·25; bill from gape, 1·3.

Legs yellow; irides deep brown; cere pale greenish yellow; bill horny, very dark at tip.

60.—Strix javanica, *Gmel.*

Killed a very handsome female on the 6th January 1879, at Hyderabad; the breast only was buff colored; all the rest of the lower parts white, spotted with brown; bill nearly all pearly white.

Length, 13·87; expanse, 39·25; tail, 5; wing, 11·12; bill at front, 1·2; bill from gape, 1·62.

Irides deep brown; legs and toes grey; claws pale horny; bill nearly pearly white.

68.—Otus brachyotus, *Gmel.*

Shot a male bird on the 21st December 1878.

Length, 14·5; expanse, 39·25; tail, 6·25; wing, 12·62; bill at front, 1·18; bill from gape, 1·12.

Irides bright yellow; toes grey; bill horny.

69.—Urrua bengalensis, *Frankl.*

Shot a very handsome pair of these owls—one on the 22nd December 1878, and the other on the 5th January 1879.

Male.—Length, 20·25; expanse, 50·12; tail, 9; wing, 15; bill at front, 1·62; bill from gape, 1·87.

Female.—Length, 21; expanse, 55·75; tail, 9; wing, 15·75; bill at front, 1·75; bill from gape, 1·87.

Irides brilliant golden yellow; bill and cere dark horny, also claws.

74 *sept.*—Scops brucei, *Hume.*

Shot a very fine specimen of this little Scops at Hyderabad, on the 16th December 1878. It was sitting in a babool bush on the outskirts of a dense young babool plantation.

Male.—Length, 8·12; expanse, 20·62; tail, 3·12; wing, 6·12; bill at front, ·62; bill from gape, ·81.

Irides brilliant yellow; toes olivaceous grey; bill horny.

75 *ter.*—Scops indicus, *Gm.*

Shot a very fine female on the 23rd December 1878, in a young babool grove near Hyderabad.

Length, 8·75; expanse, 22·12; tail, 3·5; wing, 6·62; bill at front, ·87; bill from gape, ·9.

Irides golden yellow; feet plumbeous grey; bill dark horny, darkest at tip.

Pennant's Indian Zoology.

Some time ago (Vol. V., 135) I pointed out that Jerdon's *Scops griseus, (malabaricus,* of Sharpe) was identical with *Scops bakkamuna,* of Forster, and this again with *Strix indica* of Gmelin. As at that time I had only Forster's edition of 1795, I concluded that Gmelin's name of 1788 had precedence; but I find that Forster's first edition was published in 1781, so that necessarily Forster's name has precedence.

But then other questions, which I am unable to solve, arise.

In 1769, Thomas Pennant, Joseph (afterwards Sir Joseph) Banks, and John Gideon Loten (a Governor in Ceylon) commenced a work which they entitled Indian Zoology.

Pennant undertook the descriptive part, Loten furnishing the drawings from which the engravings were taken, and all sharing the expense. Only twelve plates were engraved and published in that year, and then the further prosecution of the work was abandoned.

Later, these twelve plates and three others, engraved at Pennant's expense, but *not as yet published* in England, were presented to Forster, and in 1781 *he* brought out at Halle, in Saxony, *his* Indische Zoologie, which consisted, first, of an Essay by himself on India, its boundaries, climate, soil and sea; then of Pennant's plates and descriptions; and, lastly, of a catalogue of the Fauna of India as then known, Forster bestowing scientific appellations on those species included in this *Faunula Indica,* as he called it, which he took from Edwardes and others, who did not use any scientific names.

In 1791 (the preface bears this year, the title page 1790), a new edition of Pennant's Indian Zoology was published. This consisted of a translation of Forster's Essay, of Pennant's 16 plates (Pennant himself only accounts for 15 as above,) and

descriptions, and a re-arranged *Faunula Indica*, insects by Latham, the rest by Davies, the bird portion without scientific names and based on Latham's synopsis of Birds and Index Ornithologicus. Again, in 1795, Forster brought out a second edition of his work. Now I cannot get hold of Pennant's work of 1769, and I cannot therefore find out whether he gave scientific names to all the species he described or not.

To some he apparently did, as his names *Ahinga melanogaster*, *Gallinula phœnicura*, *Anas melanonotus* are quoted by various authors. Again, I cannot determine which were the 12 plates he published in 1769, and which were those that he gave to Forster, and which were first published by that author in 1781.

Altogether, Forster published the following thirteen species of birds.

The authorities to be quoted for these depend upon the solution of the above moot points :—

(1.) Circus melanoleucus, (*Forst.*)
(2.) Scops bakkamuna*, (*Forst.*)
(3.) Harpactes fasciatus, (*Gm.*)
(4.) Phœnicophaës pyrrhocephalus, (*Forst.*)
(5.) Callolophus miniatus, (Java,) (*Forst.*)
(6.) Galloperdix bicalcaratus, (*Penn.*)
(7.) Ptilopus melanocephalus, (? Java) (*Gm.*)
(8.) Pericrocotus flammeus, (*Forst.*)
(9.) Orthotomus sutorius, (*Forst.*)
(10.) Tantalus leucocephalus, (*Gm.*)
(11.) Erythra phœnicura, (*Penn.*)
(12.) Sarkidiornis melanonotus, (*Penn.*)
(13.) Anas poecilorhyncha, (*Gm.*)

I have placed in brackets after each name, the name of the authority to which it is now-a-days commonly attributed.

Now, as to numbers 3, 7, 10, 13, commonly attributed to *Gmelin*, it is clear that these names must stand as *Forster's*, unless *Pennant's* first edition proves that his *name* should appear as author. Under no circumstance can they stand as *Gmelin's*.

As to the whole lot, whether *Pennant's* name should be retained in regard to *any*, and if so only to numbers 6, 11 and 12, or to others, and if so to which, nothing but an examination of his first edition of 1769, of which I have been vainly trying to get a copy for years, can enable us to determine. If Pennant did not give scientific names, I do not know how numbers 6, 11 and 12 are usually quoted as his; and if he did give names in these cases, it is curious that he did not give them to

* Pennant called this bird *bakkamœna*; if he gave this name as a specific one in 1769, then this, and not *bakkamuna*, must be adopted.

all he did publish. But then, again, which were the three he did *not* publish, and for which Forster's names will anyhow stand?

Anyone at home, having access to a library in which this first edition is contained, could answer all these questions, and solve all our difficulties in a few minutes, and it is to be hoped that the spirit will move some one at home to do this.

A. O. H.

A few notes on Phylloscopus plumbeitarsus, Swinhoe, and Phylloscopus viridanus, Blyth.

By W. Edwin Brooks.

My friend Mr. Seebohm has lately done such good work, and has brought such a number of interesting ornithological facts to light, that I feel much reluctance in opposing one of his recent conclusions. But it is every one's duty to do his best to clear away mistakes, including his own when he finds them out, and for the sake of science we should never hesitate to controvert a friend's conclusions. With this little apology I begin my task.

In Vol VII., of Stray Feathers, page 454, Mr. Seebohm says: "I am also nearly sure that *Phylloscopus plumbeitarsus* will prove to be the summer plumage of *Phylloscopus viridanus*. This bird will then breed abundantly from the Ural to Lake Baikal, and winter in India and Burmah," and the Editor adds: "I think this view will require confirmation."

When such a conclusion appears in print, a few remarks are absolutely necessary, and I am in the better position to submit these, in that Mr. Hume has kindly sent me for examination a batch of *Phylloscopi* (all collected during December at Moulmein, by his curator Mr. W. Davison,) containing numerous specimens of *plumbeitarsus*. In fact the lot including 89 specimens, consisted of:—

P. superciliosus	...	... 40
P. fuscatus ...	...	... 24
P. plumbeitarsus	...	... 13
P. lugubris ...	...	... 10
P. schwarzi ...	...	... 1
P. trochiloides...	...	... 1

Here we have, therefore, a fine series of winter *plumbeitarsus*, and as to *P. viridanus*, I have shot it in every month of the year except July and August. Those I shot late in June in Cashmere at their breeding haunts were certainly in summer plumage. These did not differ from the autumnal and spring ones, except in being rather more faded and worn. They were the very birds I got in the plains; and apart from plumage, the note and song are very sure criteria.

P. plumbeitarsus is allied to *P. viridanus*, but it is closer to *P. lugubris* structurally than to *P. viridanus*.

Speaking in the first instance of *plumbeitarsus*, the points of difference are as follows:—

1. Is a structural one, and is alone fatal to identity. It has a much stronger bill than *viridanus*; in shape more like that of *P. magnirostris*. A glance at the bill decides the question of identity. The upper mandible is much more curved on the culmen, the curved portion beginning much nearer the base than in *viridanus*. In the latter, the bill in profile is flatter on the top, and the curved portion near the tip commences more abruptly. The bill of *plumbeitarsus* is thicker or deeper than that of *viridanus*. Even the lower mandible is more curved in outline.

2. The bill is darker above, and yellower below.

3. The whole upper plumage is of a darker tone, especially on the head. This is most apparent.

4. It has *two* very distinct wing bars, against the *one* rather indistinct one of *viridanus*.

5. These wing bars contrast abruptly with the adjoining green of the feather, but the wing bar of *viridanus* is blended into the greenish colour of the coverts. This difference forbids identity.

6. The wing bars of *plumbeitarsus* are yellowish in colour, but are quite white in *viridanus*, except in the young bird in nest plumage, which has the wing bar of a dull buff. I never, however, saw one old bird with a buff wing bar.

Here I should remark that in worn examples of *viridanus* the wing bar is often entirely gone, and its wing then resembles that of *P. tytleri*, which never has any wing bar. I have seen the wing bars of *R. humii* almost worn away, but they are so broad, that they are not easily entirely lost.

7. The band through the eye, and continued to the ear-coverts, is very much darker and bolder in *plumbeitarsus*, reminding one of the same feature in *P. magnirostris*.

8. We never get *plumbeitarsus* in India; at all events I have never heard of its having been met with, and its congener *viridanus* can be obtained in any quantity. Geographical distribution is a very strong point when identity is supposed.

Thirteen *plumbeitarsus* measured gave an average length of wing of 2·23, and the first thirteen I took of the other bird gave an average wing of 2·36; from which it would appear that *viridanus* is, as a rule, the larger bird: 4·75 is the greatest dimension recorded by Mr. Davison of *plumbeitarsus*, total length in the flesh. Jerdon says of *viridanus* "4¾ to 5 inches," but difference in size is not one of the strong points.

These thirteen *plumbeitarsus* were, as above mentioned, all *winter* birds. I have already enumerated all the other species of *Phylloscopi* found associated with *plumbeitarsus* about Moulmein by Mr. Davison, and it does seem strange that there was not a single example of *viridanus* out of the whole 89. I think it shows that the latter is not nearly such a common bird in Burmah as *plumbeitarsus*. I may here also draw attention to the fact, that there was not a single example of *Reguloides humii* in the box, though there were forty of *Reguloides superciliosus*.

I don't think, I need say anything further in defence of Mr. Swinhoe's bird, which is a thoroughly good species.

Phylloscopus viridanus is our most abundant Willow Wren in India. I should not like to say how many have passed through my hands, killed from Cashmere to Calcutta. I have about one hundred from this district alone, where I am now stationed, and if a good series enables one to understand a species, I must say I have had this advantage, and I have never once come across anything like *plumbeitarsus*, though I have often searched for novelties of this description. I examined a large number in regard to shape of bill, and I found that in this respect *viridanus* was very constant.

Many small sylvine birds have a sort of expression, if I may so describe it, and head alone will, in many cases, decide the species. Now who could not decide *P. schwarzi* at once by its bill alone? It has an expression of its own, quite apart from colour. The closest approach to *P. viridanus* is the female of *P. magnirostris*, which is very much smaller than the male. Here the stouter bill, much like that of *P. plumbeitarsus*, is invaluable, especially when wing bars are worn away.

The last *Ibis*, January 1879, gives an account of *P. viridanus* procured in Heligoland; the eggs of this species will, therefore, become a desiderata in European collections. I found one newly made nest in Cashmere, but could not wait for the eggs. It was a domed nest on the steep bank side of a ravine full of small birch trees. Elevation about 11,000 feet. In the same ravine were numbers of *P. affinis*, and a few *Siphia leucomelanura*.

Birds occurring in India, not described in Jerdon or hitherto in "Stray Feathers."

35 *bis.*—Limnaetus ceylonensis, *Gm.*

I by no means mean to *assert* that either this or the next species, *L. kelaarti*, are really deserving of specific separation. I have not myself had an opportunity of examining a sufficient number of specimens; but they are clearly distinguishable races, and as Mr. Gurney considers this form at any rate distinct, we cannot be far wrong in accepting his verdict for the present.

He says (*Ibis*, 1877, 430):—

"*Limnaetus ceylonensis* (*Falco ceylonensis* of Gmelin).—The ordinary Hawk-Eagle of Ceylon, which Mr. Sharpe identifies with *L. cirrhatus*, is a decidedly smaller bird. I have measured ten Ceylonese specimens, of which the largest had the wing 15·2 inches in length from the carpal joint, and the tarsus 3·6, and the smallest had the wing 14 inches and the tarsus 3·4.

"Judging from the specimens which I have seen, I should say that the ordinary plumage of *L. ceylonensis* varies but little, and much resembles the first dress of *L. cirrhatus* as described by Mr. Hume in Stray Feathers, Vol. IV., p. 356."

Mr. Legge gives full and detailed descriptions of all the stages of this bird's plumage in his admirable work on the "Birds of Ceylon" elsewhere referred to, and points out that the old bird has a dark fuliginous phase, which certainly does not occur in *cirrhatus*.

He suggests, as Mr. Gurney did previously, that my *L. sphynx* (S. F., I, 321) may be this same species, though its plumage does not altogether agree with that of any known phase of *ceylonensis*; and though its enormously long tarsus and crest, *not* tipped with white, do oppose difficulties to the identification. Looking to the localities, I should think my bird must be *ceylonensis*, despite differences; but time and a further series of specimens, can, alone, decide the question.

36 *bis.*—Limnaetus kelaarti, *Legge.*

"Having had occasion to examine a large series of *Spizaetus nipalensis* for the purpose of comparison with examples of the

Mountain Hawk-Eagle of Ceylon, I find that certain characteristics, differing from those presented by the Ceylonese birds, are constant in the Indian form. Fully adult birds from Nepal are nearly always exceedingly dark on the head, and have the whole of the centre of the chin and gorge occupied by a very broad black stripe, having between it and the equally black cheeks a space narrower than itself; the colouration of the chest likewise is very dark, from youth to the adult stage, and more examples have a plain brown feather than one with undulations of white at the lateral margins. The distinctive character of the under suface, as compared with that of the Ceylonese form, consists in the white bars on the breast, flanks, and belly being, in all cases, more or less *interrupted at the shaft* by the brown hue of the rest of the feather, which division varies from an exceedingly fine margin on each side of the *dark* shaft, to a broad space equal, even in adults, to about three-tenths of an inch. The bars are, moreover, irregular, and in many instances do not exactly oppose one another, while in others they take the form of mere bar-like spots, not reaching to the shaft or margin of the web; the brown hue of the feather is uniform throughout, being no darker at the margin of the white band than elsewhere. In contradistinction to these features, the Ceylon bird is marked from the chest downwards with broad *complete*, parallel-edged, white bands, with which the shaft is concolorous; in addition to which the brown portion of the feather is not uniform, but has a darker margin bordering the bands. The complete band exists in a young bird from Haputale in the Norwich Museum, although the only feathers which are barred at all are a few at the sides of the breast; the bars, in adults, are continued higher up the breast than in any Indian specimens I have seen, and the chest feathers are very deeply indented with white at the margins, with the brown portions paler than those of the pectoral barred feathers. A further distinctive point in the Ceylonese bird is the large foot, with its gigantic claws, that of the inner toe being equal to the average hind claw in most Nepal specimens.

In eleven adults from the Himalayas, the hind claw measured straight from base above to tip, varied from 1·65 to 1·9; while in two adults from Ceylon it was 2·1 and 2·05—*Legge*, "*Ibis*," 1878, 201.

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39 *bis A.*—Spilornis spilogaster, *Blyth.*

The Indian species of this genus, of which at present we reckon at least seven, will need careful re-consideration. I must

say I begin to doubt whether most of them, including the Bornean *pallidus*, ought not to be lumped. *Elgini* and *minimus* are very distinct, but the others run into each other terribly, and can in many cases only be separated by their dimensions.

However, Mr. Legge, who has given much attention to the Ceylon race, keeps it distinct, so I reproduce his diagnosis. Blyth applied his name to the Ceylon bird, so that this latter, if considered distinct, must stand as *spilogaster*.

Mr. Legge seems to consider the Ceylon, Sumatran and Singapore birds identical, or differing only in the immature plumage.

His diagnosis of this species is :—

"Wing, 15·3 to 16·6. *Adult.*—Chest uniform brown without any transverse stria; throat and cheeks pale iron-grey; under surface spots variable in shape and size, surrounded by a dark edge, which is also variable in intensity; median under wing-coverts concolorous with the chest. *Juv.*—Head-feathers conspicuously tipped with white; throat and cheeks blackish."

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299 *ter*.—Butalis muttui, *Layard*.

"Length, 5 inches; of closed wing, 3 inches; of tarsi, 0·56; bill (to the end of gape), 0·7; upper mandible dark brown, with pale tip; lower mandible yellowish; general resemblance of *But. latirostris*, but of a far more rufous colour; this colour most prevalent on the outer webs of the wing-primaries, the outer tail-coverts, and sides of the breast and belly; throat, belly and vent white; breast rufous ashy; back of the head dark brown; irides light brown."—*Layard*, "*A. & M. N. H.*," *2nd S.*, XIII, 127, 1854.

"On comparing the Ceylonese Rusty Flycatcher, several examples of which I possess, with specimens of *Alseonax ferrugineus* in the British Museum, I find that it is quite distinct from the latter bird. Layard's description tallies very well with my specimens, which were procured in forest in the north and west of the island, but he makes no mention whatever of the very delicate *yellow* legs and feet, which are the chief characteristics of the bird; nor does he speak of the white spot on the lores, nor the conspicuously dark patch on the lower part of the face, contrasting with the rather narrowly confined white of the throat. Notwithstanding the description, short as it is, comes too close to my birds to permit of my considering them as belonging to another species. *Alseonax ferrugineus* differs from the Ceylon bird in the much deeper rufous of the rump,

upper tail-coverts, and margins of the wing-coverts, but more particularly in the rufescent hue of the lower parts, including the under tail-coverts, these being white in the insular form."—*Legge*, "*Ibis*," 1878, 203.

Captain Legge's description, or rather remarks, led me at first to suspect that he might possibly have got specimens of *Cyornis (Alseonax) mandellii* (S. F., II., 510; VII., 456); but he says nothing of the conspicuous white ring round the eye, while our bird has no conspicuous patch on the lower part of the face. Comparison is clearly necessary.

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688 *ter*.—Sturnia sinensis, *Gm*.

"Length, 7·1; tail, 2·2, rounded; wing, 4·55; tarsus, 1·1; bill, straight, 0·75.

"Iris black; bill blue, with the point yellowish; feet reddish grey; upper parts of a very light ashy grey, with the forehead, lower tail-coverts, scapulars, wing-coverts, throat, abdomen and lower tail-coverts white, more or less tinged, especially in the spring, with rusty; quills black, with a metallic lustre; rectrices similar, with a white tipping, running somewhat up the sides of the feathers."—*David and Oustalet*.

"All the wing-coverts, rump, the lateral tail-feathers and the entire lower surface of the body from the breast to the tips of the lower tail-coverts pure white; head, neck, breast and back uniform ashy grey; quills brazen black, somewhat inclining to green; the two middle tail-feathers similar, tipped white; the rest white but pure black towards the base."—*Wagler*.

(These two descriptions differ somewhat, but I have no specimen at hand here to compare or correct them by.)

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763 *bis*.—Otocoris alpestris, *Lin*.

As mentioned (*ante*, p. 422), my specimens of *O. elwesi* labelled by Mr. Blanford himself are, in my opinion, simply *O. pencillata*, but as Dresser takes a different view, I reproduce his remarks, as also his description of *alpestris*.

"*O. pencillata* (Gould).

"Inhabits south-eastern Europe, and thence ranges eastward to Thibet. Since writing my article on this species I have examined Mr. Gould's beautiful series of Shore-Larks, in which are several specimens from Kulu of the so-called

Otocorys longirostris, which fully confirmed the view I previously took,* *viz.*, that these birds are nothing but long-billed and rather large varieties of *O. pencillata*, which appears to increase somewhat in size as it is found further eastward, and especially in the length of the bill. None of these specimens has the black on the sides of the face divided by white as in *O. alpestris*; but the sides of the throat are continuously black, though the white patch on the chin and upper throat is larger than in examples from Lebanon. On the other hand, I find a specimen labelled by Mr. Blanford himself *Otocorys elwesi*, which is certainly not the same as those from Kulu, as the black pectoral shield is divided from the black on the sides of the face by a white patch as in *O. alpestris;* and it closely agrees with the specimen from Tientsin referred to in my article on *O. pencillata*, and resembles *O. alpestris*, but is paler, has a longer bill, and the white on the head and throat is entirely free from any tinge of yellow. As this article was going to press, Mr. Blanford brought his type of *Otocorys elwesi* to me for examination; and, as I find it agrees with Mr. Swinhoe's Tientsin specimen, *O. elwesi* should be removed from the synonyms of *O. pencillata*, it being merely a pale large-billed form of *O. alpestris*.

"O. ALPESTRIS may be thus described:—

"*Adult Male in Summer.*—Forehead and a line over the eye, chin, throat, hinder portion of the auriculars, and portion bordering the facial patch, very pale sulphur yellow or white, with a yellowish tinge; forepart of the crown, lores and a large facial patch extending through and behind the eye and down the sides of the upper neck, together with a large shield extending over the lower part of the neck and upper breast, jet black; feathers on the sides of the crown above the eye elongated, forming a tuft on each side; crown from the centre, nape, back, rump and scapulars, pale brownish red, greyer on the nape and redder on the rump and upper tail-coverts; dorsal feathers and scapulars with dusky brown centres; quills dark brown, margined and tipped with greyish white; the first primary, with almost the whole of the outer web, white; wing-coverts pale reddish brown, also with whitish margins and tips; the two central rectrices reddish brown, with dark brown centres; the remaining tail-feathers black, the outermost having the outer web nearly to the base white, the rest being narrowly edged with whitish at the tip; lower part of the breast, abdomen, and under tail-coverts white; flanks reddish brown, slightly streaked with darker brown on the upper flanks, the

* This I have long held also.—ED.

reddish colour extending towards the middle of the breast; bill greyish black; the base of the lower mandible dull greyish; legs blackish; iris dark brown. Total length about 7 inches; culmen, 0·65; wing, 4·0; tail, 2·8; tarsus, 0·88; hind toe with claw, 0·6; hind claw, 0·35.

"*Adult Female.*—Resembles the male, but is duller in colour, and the black on the crown is replaced by brown feathers with blackish striations, and the white forehead is similarly obscured.

"*Male in Winter.*—Is much duller and browner than the male above described; the black on the crown is hidden by the yellowish brown tips to the feathers; the upper parts are wood-brown in tinge, without the pale reddish tinge which pervades the summer dress; the crown is tinged with sulphur-yellow; the black facial mark and the pectoral shield are smaller in extent, the former marked with sulphur-yellow; and the throat and portions of the head and neck, which in summer are yellowish white, are now primrose-yellow.

"*Nestling.*—Crown, sides of the head, nape, back, and scapulars blackish brown, marked with round spots of a dull buffy white or pale ochre-colour; quills blackish brown, with a metallic gloss and broadly edged with pale fulvous buff; secondaries and wing-coverts broadly tipped with pale buffy white; tail very short, blackish brown, with a metallic tinge, the outer feather with the outer web yellowish buff, the remaining rectrices bordered with fulvous buff; chin and throat buffy white, slightly marked with blackish; through and behind the eye an indistinct buffy white streak; breast and flanks blackish brown, marked with yellowish buff; abdomen and under tail-coverts white."—*Dresser's Birds of Europe.*

Notes.

Mr. Sharpe remarks, *Ibis*, 1878, 418, that *Cyornis unicolor*, Blyth, and *C. cyanopolia*, Boie, are identical. I have already, S. F., V., 489 *n*, pointed out that this is not, in my opinion, the case; and having a very large series of both forms, I have no hesitation in saying that I consider the two distinct.

These small Flycatchers require very careful examination, and it is not by a mere casual glance at their general contour and coloration that they can be disposed of. A large series of each form is moreover essential, as it is only when these are seen to be constant throughout huge series from the same locality, that the specific value of the minute differences that

separate so many of the species of this group can be fully recognized.

FRIENDS ARE CONTINUALLY reporting to me as novelties, matters, that though pointed out by me ten years ago in the *Ibis* or elsewhere, are not recorded in Jerdon, and have not been noticed in STRAY FEATHERS, and are hence unknown to the mass of Indian ornithologists.

One of these is, that *Corvus cornix*, the Royston Crow, the Hoodie Cra' of Scotland, is extremely common during the winter in the extreme N. W. Punjab, Trans-Indus, occasionally occurring as a straggler, a little further east, Cis-Indus.

IT HAS BEEN USUAL of late years to designate the Southern Yellow-naped Woodpecker, *Chrysophlegma xanthoderus*, (Malherbe). Jerdon and Blyth both called it by some oversight *C. chlorophanes* (Vieillot), but it seems generally admitted that Vieillot never bestowed any such name on it, so that that name cannot stand.

The first name really applied to the species was *chlorigaster*, by Jerdon, in his second Supplement in No. 31, the December 1844 number of the Madras journal of Literature and Science, page 138, and by this name the bird must stand.

No doubt Malherbe's British Museum name for this species dates from 1844, but it was not published, and remained a MSS name until it was published towards the end of 1845, in the Revue Zoologique, page 402. Even, admitting as I have been told that No. 31 of the Madras journal, though dated December, did not actually issue until February 1845, Jerdon's name still has precedence of Malherbe's.

MR. LEGGE IN HIS charming history of the "Birds of Ceylon," calls our Indian Hoopoo, *U. nigripennis*, Gould, with 1856 as date of publication, but page 725 of Moore and Horsfield's catalogue was not published until after January 1858 (see date on page 752), while Reichenbach's name *ceylonensis*, which I suppose must stand, dates from 1851.

IT seems to me somewhat doubtful whether Gmelin's name ought to be retained for the Crested Black and Chestnut Bunting that we now call *Melophus melanicterus*. He thus describes the species:—

"*Fringilla nigra, alarum caudaeque margine ferrugineo; abdominis maculis paucis albis.*"

"*Habitat in* Macao, *linotæ magnitudine*, 4½ *pollices longa;* rostrum pedes *que fuscescentes.*"

The diagnosis is absolutely wrong. The wings and tail are *not margined* with ferruginous; there are *no* white spots on the abdomen. The dimensions are too small. Latham, one of the authorities quoted—in fact the above is his description translated—says of the Java Sparrow that it is of the same size as this. I feel by no means certain that either Buffon's bird, or Ray's "Small black and orange-colored bird, refers to this present species."

The most conspicuous thing in the bird *we* call *melanicterus* is the crest, but Latham, who is really the basis on which the name *melanicterus* of Gmelin rests, says *nothing* about it. This may be because Buffon's plate on which again Latham founded his description was bad; but *I can't find* Buffon's plate. Gmelin, Latham, &c., all quote the pl. Eulum., No. 224, f. 1. Now P. E. 224 in my copy is *Jacarini* (*Tanagra jacarina*, Lin.), and there is only one figure on it, and pl. 223, which has two figures, has for the first Moineau du Senegal, (*Fringilla senegalla*, Lin.), whereas the bird described by Latham and Jerdon is Moineau de Macao, of which I have not been able to turn up the plate amongst the P. E., though doubtless it must occur.

On the whole the name *melanicterus* seems to me doubtfully deserving of retention, and if discarded, it must apparently be replaced by *cristata*, of Vigors, P. Z. S., 1831, p. 35, which certainly applies to this species.

I AM UNABLE TO DISCOVER any valid reason for superseding Blyth's name *leucopygialis*, (J. A. S. B., XVIII., 809, 1849) for the Malayan Grey-rumped Spine Tail by S. Müller's manuscript name *coracina*, which was only published by Schlegel in 1857 (Handl. Dierk. I. 221, 479; vogels, pl. 2, f. 14.)

The only pretext for this seems to be that Boie, in 1844, gave the name *leucopygia* to an African Spine Tail, *sabini*, of J. E. Gray.

Now, in the first place, I myself am greatly disposed to doubt whether these African Spine Tails are truly congeneric with our bird. I should be greatly inclined to restrict *Chætura* to the American Spine Tails to place *giganteus*, *nudipes*, &c., in Hodgson's genus *Hirundapus* (or as amended by Sclater *Hirundinapus*,) and to create a new genus for the African Spine Tails, and another for *sylvatica* and our present bird.

But setting this aside, accepting the whole as *Chætura*, setting aside also the fact that Boie's name is a dead synonym—a

fact which according to me (*and* as I have previously shown the Brit. Assoc. Code) entirely prevents its interfering with any other name—setting all this aside, certainly *leucopygia* does not kill *leucopygialis*. No one suppresses *viridanus*, because there is a *viridis* in the genus, and why suppress *leucopygialis* because there is a *leucopygia*? *Pace* the great authorities in Europe, I think Blyth's name must certainly stand.

I MAY NOTE that *Dendrocitta assimilis*, nobis (S. F., V., 117) is not as has been suggested *D. sinensis*, any more than it is *D. himalayensis*. The former is distinguished by having the upper tail-coverts pure white, (not light French grey), and the whole of the two centre tail-feathers black, instead of having the basal two-thirds of these grey. In both these respects *assimilis* agrees with *himalayensis*, but as regards colour of throat, sides of neck, face and back, it agrees with *sinensis*, while its bill differs from both.

WRITING OF PRATINCOLA INSIGNIS from the Gorakpur and Bustee districts, Mr. E. W. Cleveland says:—

"I have looked very carefully for this species ever since I got your letter, but have only succeeded in securing five more up to date

"I have seen and shot perhaps as many more, but have unfortunately lost them in the dense cane fields which these birds usually frequent, and whence, if not killed outright on the spot, it is impossible to recover them.

"It takes a good deal of patient fagging to find these birds as they occur rather sparingly in these districts.

"Judging from my own experience, I should say that in the course of a ten-mile ride across a stretch of flat open country, thickly dotted with cane fields (their favourite haunts) one would scarcely meet with more than a single pair of these birds, whereas upwards of twenty *P. indica* would probably be seen in that distance."

MR. BROOKS, NOT LONG ago, (*ante* p. 139), pointed out that Mr. Seebohm was in error in applying Hodgson's name *alboides*, to the Wagtail to which heretofore the name *luzonensis*, Scopoli, has been (and erroneously) assigned.

According to Hodgson's own plates, his term *alboides*, clearly refers to the other black-backed form *hodgsoni* of G. R. Gray, and I think that even in his original description, which I now reproduce, the same may be traced.

As Mr. Brooks says, we must, I apprehend, adopt Mr. Gould's name *leucopsis* (P. Z. S., 1837, 78) for this species.

Mr. Hodgson's description (Asiatic Researches, XIX., 191, 1836) runs as follows :—

"MOTACILLA; PROPER, *Species*, new; ALBOIDES, nobis.

"The oriental analogue of *Alba*, cui simill.; but clearly distinguishable by its white throat, its completely black neck, and the greater blanching of its wings, which, when closed, show nothing but white, except on the tertials.

"*Colour and size of Mature Male.*—Forehead, cheeks, and throat, white, divided by a narrow black line from the gape; back of the head, with the whole neck, breast, shoulders, body above, and eight central tail-feathers, jetty; four lateral caudals, with the body below and greatest portion of the closed wing, white; quills, black internally, and opertly so on the tertials, which, however, have very broad margins of white; bill and legs, jet; iris, brown; eight inches long by 11·5 wide, and less 1oz. in weight; tail, 3·75; tarsus, 0·94; central toe, 0·56; hind, 0·31; its claw, 0·18; wings, 2·5 inches short of tail. Amidst all the changes of plumage to which this species is liable, I still think, I may safely say, that the female (like the young) is slaty above, and white below, with a black gorget on the breast, and a blackish zone round the cheeks; wings, mostly black brown, with a narrow white edging."

FOLLOWING JERDON AND BLYTH, we in India generally apply the generic term *Venilia* to the Brown and Ruddy Woodpeckers, "*pyrrhotis*," Blyth, and "*porphyromelas*," Boie.

Salvadori, Cabanis and other purists apply Cabanis' generic name *Lepocestes*.

Mr. Gray, as I think correctly, and certainly in strict accordance with the Code, adopts Bonaparte's name *Blythipicus*, and we must, it seems to me, follow him.

The names stand in this order :—

Venilia.—Bonaparte, 1850, but *not* Duponch of 1829.

Blythipicus.—Bonaparte, 1854.

Pyrrhopicus, *Plinthopicus* } Malherbe, 1861.

Lepocestes, *Phloistes* } Cabanis, 1863.

The purists reject *Blythipicus*, a capital name in my opinion, on the ground forsooth that it is barbarous, as if the whole of us, at any rate of the Teutonic and Celtic stocks, were not barbarians ourselves.

The Code affords *no* pretence, even for rejecting *Blythipicus*.

THE LATE MR. SWINHOE observed (P. Z. S., 1871, p. 365,) that he had seen a specimen of the true *Anthus obscurus* from India. I have ever since been trying to verify this. I wrote to Mr. Swinhoe about it, but got no answer. I have never seen an Indian specimen of this bird, nor have I ever met with anyone who has. India is utterly outside the range of this species, and I cannot but conclude that Mr. Swinhoe was mistaken.

Under these circumstances, although on Mr. Swinhoe's authority it has stood there for many years, I have now excluded it from my list of the Birds of India; after all Swinhoe *may* have meant to refer to *spinoletta* so commonly in former times confounded with it.

IN THE LAST NUMBER of the *Ibis*, the editors remark:—

"It appears not to be understood by some naturalists that specific names *may* be substantives. Linnæus used many such, *e.g.*, *Turdus merula*, *Emberiza cirlus*, and *Fringilla spinus*, in each of which cases, it will be observed, the specific name is of a different gender from the generic, the two terms being placed in apposition. In the face of this, certain naturalists do not hesitate to violate the plainest rules of Latinity, in order to bring their specific and generic names to the same termination. Not to speak of Mr. Sharpe's *Cerchneis tinnuncula* (!), Mr. Dresser has lately attempted to turn *agricola* into an adjectival form (*Acrocephalus agricolus*, Dresser, B. of Eur., pt. 53), not considering that it is a masculine noun, though ending in *a*.—Surely no one who has been to school can forget.

"O fortunati nimium sua si bona norint.

"Agricolæ!"

"In the new number of "STRAY FEATHERS" Mr. Hume, in a similar frame of mind, proposes to convert "*eremita*"—another masculine noun—into an adjective, and tries to persuade us to call our old friend *Fregilus graculus*, "*Graculus eremitus*."

Now, in the first place, I beg to point out that Jerdon himself assigned the name *agricolus* and not *agricola*, and that there is not only nothing to show that he did not intend to apply the word *agricolus* as an adjective, but an irresistible presumption that he did so intend it. If it be said that there is no such adjective in classical Latin, the answer is that at least half the adjectives in use in scientific specific nomenclature have no complete classical warrant. The greatest purists in nomenclature use a nearly similarly compounded adjective *monticolus*, and Linné himself gives us *rusticolus*, (S. N., I., 125, No. 7), as well as *rusticola*, and though doubtless the adjective *agricolaris* would have been more correct, there is nothing so glaringly offensive

in Jerdon's own name *agricolus*, as should demand its rejection in our scientific dog Latin. Linné himself never exclusively adhered to strictly classically constructed specific names, *e.g.* "*arauna*," "*baltimore*," "*lory*" (can *any* thing be more *un*classical than this last ending in a *y*?), and on what grounds therefore are we to insist that Jerdon's adjective "*agricolus*" must be rejected as unclassical and changed to the substantive "*agricola?*"

In the second place, I don't think that the editors have quite hit the right nail on the head when they suggest that the non-agreement of genders in the instances cited by them is due to the specific name being a substantive.

By no possible construction can *hypoleucus* be a substantive, but Linné gives us *Tringa* (fem.) *hypoleucos*.

At first it may be suggested that he did not decline words derived from the Greek; but this is not so, he invariably did, *e.g.*, *Bradypus tridactylus*, *Myrmecophaga tridactyla*; *Falco leucocephalus*, *Columba leucocephala*, *Fringilla erythropthalma*, and many others.

And the instance above given is by no means a solitary one, take, for instance, *Motacilla schœnobœnus* or *Motacilla phœnicurus*, in neither of which cases can the specific name, it seems to me, be construed as other than an adjective.

Long ago I used to puzzle over this, but I soon found out that in almost every instance of such non-agreement in the whole SYSTEMA NATURA, specific names not agreeing in gender with the generic name commenced with a capital.

The few exceptions are all, I think, save one, obvious misprints. I forget the others now, but one I remember is *Fringilla bengalus*, which, of course, *ought* to have commenced with a capital. Looking closer I found that in all cases these specific names commencing with a capital were, *whether adjectives or substantives*, existing appellations, appropriated by Linné from the ancients, or his ornithological predecessors, or lastly from the vulgar tongues. Thus the non-agreement of gender has nothing to do with the specific name being a substantive, but merely indicates that it was some one else's name that Linné, more scrupulous than many of his successors, did not feel himself justified in altering.

I in no way dispute the editors' dictum that many specific names are substantives originally; I only contend that all are *used* as adjectives, and that Linné himself either had recourse to an existing name, which he then reproduced intact, or used adjectives which he declined.

As to *Graculus eremitus*, that is due to a final correction of my printer's classical reader; had *I* intended any change I should have written *eremitis*; the name *eremita* is printed

with a capital and has stood unchanged in my list for long. Indeed I should as soon I think, now that I understand the matter, of altering *Sula piscator* into *piscatrix* or *Loxia enucleator* into *enucleatrix*, as I should of altering *eremita* into *eremitus;* all three are pre-Linnæan names, thought worthy of retention, intact, by the Ritter Carl, and not now to be mangled by meaner hands.

Possibly one *bonâ fide* slip does occur where, despite the use of adjectives, he has not attended to gender, *e.g.* :—

Turdus atricapilla !

the *atricapilla* not being commenced with a capital. Even here it seems probable that, though forgetting the capital, Linné intended to show by keeping the adjective feminine, that he adopted his specific name out of Brisson's title *Merula* ATRICAPILLA *capitis b. spei.*

However, as he *did* omit the capital, and did not, as in the case of *Fringilla bengalus*, adopt a simple existing appellation in its integrity, I should hold that we were justified in *this* case in declining the adjective properly, and in assuming that the retention of the feminine termination is here a misprint, (just as clearly is the *h* in *ochrophus*, or *albiulla* for *albicilla*,) which we are fully justified in correcting.

On the whole I cannot doubt that our editors will be deeply gratified at finding themselves justified in relieving Mr. Dresser of the sad imputation of never having been to school, and at discovering that instead of that unpardonable sin against "the plainest rules of Latinity," to wit the confusion of a masculine noun in *a*, with the case of an adjective, Mr. Dresser has only, humbly following in the footsteps of Carl *v.* Linné, reproduced in its integrity the specific name that he adopted from a predecessor.

SINCE MY REMARKS about *Chaulelasmus angustirostris* (*sup. p.* 493) were printed off, I obtained a second specimen of this species, to-day, February 19th, in the Calcutta market. More than one specimen of this species has, therefore, this year straggled as far east as Calcutta. Indeed in all human probability two having been actually captured within the limited area that supplies our market, a considerable number must have visited Lower Bengal.

Letters to the Editor.

Sir,—I wish to place on record the occurrence in India Proper of the Malayan Tiger Bittern (*Goisakius melanolophus*).

I subjoin a description of the specimen, though it is perhaps hardly worth printing, as you yourself have minutely described some of the species in Stray Feathers, Vol. II., p. 313.

The specimen was a male, and the following are its dimensions (taken in the flesh) :—

Length, 19·62; extent, 37; wing, 10·37; tail, 3·62; tarsus, 2·69; bill from gape, 2·37; bill at front, 1·81; middle toe with claw, 2, without claw, 1·81; hind toe with claw, 1 25, without claw, 1·06.

The third primary was the longest; the second and fourth being sub-equal, and about 0·12 of an inch shorter, while the first was 0·81 less than the third.

Crown of head and nape black; the feathers of the occiput lengthened into a full crest, and each irregularly marked with a white spot across its centre, and a smaller white tip; the feathers of the forehead and above the eyes black, with ochreous instead of white spots, forming an obscure bar above the eye; cheeks and sides of throat pale ochreous, with narrow zig-zag lines of black across the feathers; the mantle chestnut, freckled and irregularly barred with narrow zig-zag lines of black; upper tail-coverts dull black, with white dots.

Tail, above, dark slaty or bluish black; quills black, tipped with white, the base of the white tinged with chestnut and mottled with black; greater coverts of first three primaries black, broadly tipped white; the base of the white on the outer webs tinged with chestnut; rest of the greater primary coverts chestnut, with white tip, black midrib, and black freckles below the white tip; secondaries and tertiaries dull black, broadly tipped with dull chestnut, which is closely freckled with black blotches and spots, and replaced at the extreme tip by white less densely freckled; two or three small feathers at the angle of the wing pure white.

Under primary coverts pale ochreous, closely barred with black, and the larger feathers broadly tipped white; rest of under wing-coverts barred black and white.

Chin and throat white, faintly tinged with ochreous, and with an obscure central streak of black dots; throat rich chestnut, minutely banded with black bars; centre of breast like the throat, with two lateral streaks of ochreous (one on either side) formed by some of the feathers continuously being paler chestnut and free from all black but a few dots.

Abdominal feathers pale ochreous chestnut with small dots and obscure bars of black, but mostly with a white central streak; elongated feathers of the abdominal train paler ochreous, very faintly and sparsely dotted with black, and with the central streak of white more apparent; coverts of tibia ochreous, mottled with dull black; under tail-coverts white, tinged on their outer margins with ochreous and speckled with black dots.

Bare skin in front of the eye and about the base of the bill green; legs and feet greenish olive; claws pale plumbeous.

This Bittern was sent to me on January 3rd by a friend, who procured it in rather a curious manner. He was passing through the forest at an elevation of about 2,500 feet above sea level, when he observed the Bittern fly heavily into a tree. Immediately it alighted, it was struck by an Eagle, which was carrying it off, but dropped it on hearing my friend shout. On reaching the ground, the unlucky Bittern was pounced upon by my friend's dogs, but fortunately rescued before it was much damaged as a specimen.

Near the spot of its capture is a small swamp in a clearing, and within two miles at an elevation of over 3,000 feet are two other small swamps in the forest; but none of them, one would think, large enough or with sufficient covert to attract a Bittern.

The bird was in very good condition, with large quantities of fat under the skin and round its entrails, and from this it would appear that, if a straggler, it had not recently arrived from a long flight.

MYNALL, TRAVANCORE. FRANK W. BOURDILLON.

[This is not the first occurrence of this species in India Of course in Ceylon, Layard made it known many years ago, but about 18 months ago Mr. Inglis procured a specimen at Dilkoosha, North-East Cachar, and sent it to me, and it will duly appear in our second list of the birds of North-East Cachar. —A. O. H.]

SIR,—It may interest you and some of your readers to know that a Woodcock was shot last Christmas day, about two miles from Tanna, by R. D. Cairns, of the Oriental Bank, here. It was flushed in some bushes at the foot of some low hills near some marshy ground. I send you the skin. This is the first instance I know of a Woodcock being seen in this part of India.

I see that in a note at p. 423, of Vol. I of STRAY FEATHERS, you say that the Pintailed Snipe is rare in Western India. That is not the case at any rate about Bombay where the Pintail Snipe is quite as common as the *scolopacinus*. Indeed about Tanna and

in the Snipe grounds across the Bombay Harbour you will get more of the Pintail Snipe than of the other.

In Guzerat, the Pintail is not nearly so common, but this Christmas I found in a bag of nineteen couple of Snipe there were five couple of Pintails, an unusually large proportion I think in Guzerat.

On the 1st December last, at Gorebunder, about 20 miles from here, I caught two young painted Snipe, about half grown; they were unable to fly. Is this not rather late to see birds so young?

The Bittern, I believe, is not an uncommon bird, but it is seldom seen here. In eight years I have only seen three; one I shot on the 22nd October 1877 on the flats, half a mile from this club close to the railway, and within 200 yards of the foras road which crosses the flat from Bombay to Worlee; the second I saw, but did not get a shot at, on 12th January 1878 on the Bhewundy tank; and the third I shot on the 24th February 1878 at Panwell.

J. D. INVERARITY.

BOMBAY;
January 13th, 1879.

SIR,—A fact connected with the breeding of Painted Snipe may interest you. I was informed yesterday that there were some Snipe seen in the bed of an almost dry river running past my bungalow, and went down with my gun to get them. My informant pointed to a spot almost as bare as the palm of my hand, and incredulously I walked up to it, when up got a Painted Snipe at my feet which I shot, and at the report of the gun another rose close by, which I also knocked over. A lad, who was with me, then pointed out to me what was evidently the nest of the bird, (a lump of mud and slime trodden down in the centre into a hollow) containing one egg, and on my return another egg, precisely similar, was taken out of the female bird. As neither I nor my brother officers, some of whom have had long experience in the Deccan, were aware that this was a breeding place for Painted Snipe, I think perhaps you may be interested to learn the fact.

C. GUBBINS,
Hyderabad Contingent.

AURUNGABAD,
12th February 1879.

SIR,—I hope that the five birds added to the Avifauna of Sind and of India on the authority of Mr. Murray's *unlabelled skins* S. F., VII, p. 114, will not be included in the list of the Birds India

without further proof. You have yourself pointed out how imperfect the evidence is, but still you apparently feel disposed to accept the species as Indian. When you reflect how many years and how much labour have been necessary to expel *Emberiza hortulana* and *Phylloscopus trochilus* from the Indian list, and how an erroneous locality, once admitted, sticks like a burr, causing all kinds of blunders, I am sure you will agree with me that it is much better utterly to ignore doubtful species than to admit them even with the most liberal expenditure of notes of interrogation.

What is the evidence in favour of the occurrence of *Ruticilla mesoleuca*, *Saxicola leucomela*, *Lanius auriculatus*, *Emberiza miliaria* and *Linaria cannabina* in Sind? There is not a single other species obtained by Mr. Murray, the occurrence of which is at all surprising. So many common Indian forms straggle into the Indus Valley at times, that there is, so far as I can see, nothing in the list more remarkable than some of the species I myself obtained, nor is there any, the occurrence of which is more exceptional than that of Mammalia like *Felis viverrina* and *Corvus duvanceli*, both of which I know exist in Sind. *Corvus umbrinus*, the only other western species procured by Mr. Murray, I have shot on the Baluchistan Coast, where I found it common, not 100 miles west of Karachi, and I am only surprised it has not been shot in Sind before. But the other five species are all said to have been procured by one native collector at one locality within a very short period. I feel assured there is same mistake. I no more believe the birds were procured in Sind than I believe that Mr. Murray found *Unio margaritifera* or fresh water Cerites in the Manchhar lake; of course the same explanation will not hold good in both cases. The supposed *Unio margaritifera* was perhaps *U. marginalis* or some allied form, and the "fresh water *Cerites*" probably *Melania tuberculata*, but of course I do not doubt that the birds are correctly identified. All I urge is, that they be not included in the list of Sind species without additional evidence.

W. T. Blanford.

Calcutta, *February* 15*th*, 1879.

Sir,—As regards the Pink-headed Duck, I have never shot one, neither do I know any one who has.* My friend, Mr. Anderson, says there is a stuffed specimen in the Museum at Lucknow. He does not know who shot it, or who presented it to the Museum. I have always been a sportsman, and I have shot a great deal out in India and at home, still I have never come

* See my remarks, *ante*, p. 492.—*Ed.*

across the Pink-headed Duck, and I can hardly think the bird can be found anywhere in Oudh.* Mr. Anderson, who was for many years Deputy Commissioner at Baraich, and is a good sportsman and naturalist, tells me he has never seen the duck.

I was five years at Kheri, then one of the best sporting districts on this side of India, and in those days I had the opportunity of shooting a great deal more than is now possible, and I certainly never came across the Pink-headed Duck.

Red-headed Pochards, Mallard, Pin-tails are all more or less common on big waters in the north and north-eastern parts of Oudh. Even the large Bustard (*Eupodotis edwardsi*) was then procurable in two places in the Kheri District.

MAURICE TWEEDIE,
Major.

I seem to have neglected to furnish any description of

762 *bis.*—ALAUDULA PISPOLETTA, *Pall.*

Of this I quote Dresser's description, as it applies to the birds we get here, but I must note that this is not apparently what Radde and v. Homeyer call *pispoletta* (a much greyer bird with much longer tail and longer tertiaries,) but what v. Homeyer named (J. f. O. 1873, 197) *heinei*.

According to him, no mean authority, the true *pispoletta* has never been obtained in Europe, while *heinei*, which is clearly what Dresser calls *pispoletta*, occurs equally in Southern Russia and Western Asia. It is this latter form that we obtain commonly in the plains of the Punjab and the interior of the Himalayas; whether the much greyer form with the long tail, say 2·6 or more and the longer tertiaries also occurs within our limits, I cannot say. It has been sent from Chinese Thibet, but I have not seen it from our own territories. Dresser says:—

Adult Male.—Upper parts dark earth grey, the feathers having a central dark mark; quills dark brown, edged with dirty white; secondaries darker in the centre and lighter towards the edge, the inner secondaries much shorter than in *C. brachydactyla*, reaching only to within about an inch of the tip of the first primary; wing-coverts dark brown, broadly edged with light earth brown; outermost tail-feathers white, having a black line on the inner webs, the next in order blackish brown on the inner webs, white on the outer webs, the remainder blackish brown, imperceptibly edged with pale earth-brown, the centre ones washed with light brown; above and below the eye a pale, dull, buffy white stripe; chin white; sides of the neck spotted with dark brown; auriculars marked with brown; under parts white, on the breasts and flanks striped with dark brown; beak dull horn-colour; legs light brown; iris dark brown. Total length, 6·6 inches; culmen, 0·5; wing, 3·8; tail, 2·3; tarsus, 0·85; hind toe with claw, 0·6.

"*Female.*—Similar to the male, but somewhat smaller in size."

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* I possess two specimens shot near Lucknow itself.—ED.

End of Vol. VII.

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FINIS.


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